

**EVALUATION OF
EPA NEW ENGLAND'S
COLLEGES AND UNIVERSITIES
INITIATIVE**

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This evaluation was performed by Industrial Economics, Incorporated (IEc) for EPA's Office of Environmental Policy Innovation and EPA New England under Contract 68-W-02-048 between EPA and IEc. The evaluation team included Robert Black, Stephanie Hutchison, Scott Bleiweis, and Andrew Schwarz. Peggy Bagnoli, Ronnie Levin, and Josh Secunda of EPA New England and Eric Marsh of EPA's Office of Environmental Policy Innovation played technical advisory roles.

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EXECUTIVE SUMMARY

EPA New England has developed and implemented a variety of innovative programs designed to improve environmental results at colleges and universities (C/Us). Among these, the New England Colleges and Universities Initiative (the C/U Initiative) provides compliance information and training to C/Us; promotes innovative self-audit and environmental management system (EMS) initiatives; and encourages environmental best management practices. The overall goal of the program is to improve environmental performance at C/Us while enhancing environmental awareness on campus.

Industrial Economics, Incorporated assisted EPA New England in developing an evaluation of the C/U Initiative, focusing primarily on the Audit Initiative component, under which participating schools are given low inspection priority and reduced penalties in exchange for completing self audits of their facilities. The evaluation is based primarily on a survey of 52 C/Us participating in the Audit Initiative, as well as on a series of additional interviews with regulators and schools that chose not to participate in the program. The objectives of the evaluation are to help determine if C/Us are implementing preferred environmental practices as a result of the C/U Initiative; examine the factors that motivate C/Us to take part in the program; and consider the applicability of the C/U Initiative approach to other EPA regions or other sectors of the regulated community.

The evaluation yields a variety of findings and conclusions about the effectiveness of the C/U Initiative:

- ***Program Incentives Encouraged Participation:*** Roughly half of all New England C/Us took part in the Audit Initiative. While the threat of enforcement actions encouraged many C/Us to participate, nearly all C/Us were motivated by the incentives offered under the Audit Initiative, particularly the desire to achieve a lower inspection priority.
- ***Participants Addressed Violations Identified in Self Audits:*** About three-quarters of the Audit Initiative participants implemented short-term corrective actions to address problems found in their self audits. Common actions included waste labeling, spill prevention, and waste removals.
- ***Participants Are Implementing Long-Term Environmental Management Changes:*** Rather than simply implementing “band-aid” corrections to issues uncovered in audits, nearly all of the Audit Initiative participants are implementing long-term environmental management improvements. Common changes include improved recordkeeping and information management; labeling programs; and enhanced training requirements.

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- O ***Participants Intend to Perform Audits in the Future:*** As further evidence of the potential for the Audit Initiative to yield future dividends, over three-quarters of the schools surveyed intend to perform additional self audits in the future. This finding demonstrates that, although participants found the self-audit process demanding, it was valuable and worth repeating.
- O ***Participants Find Outreach Tools Useful:*** Survey respondents voiced satisfaction with the technical support efforts that EPA has taken as part of the overall C/U Initiative. Respondents cited the workshops, the common violations list, the regulatory interpretations, and the summary of the SPCC regulations as being especially useful in completing self audits.
- O ***Many Schools Are Implementing or Considering EMSs:*** Nearly half of the survey respondents are implementing, planning, or considering an environmental management system. These schools cite the self-audit process and EPA's overall educational efforts as influencing their decision to explore EMS. This finding suggests that EPA efforts to increase awareness of EMS and encourage adoption of EMS are succeeding. However, most schools are in an early stage with their EMS and were not yet able to identify specific benefits yielded by the approach.

Two factors appear to be most responsible for the success of the C/U Initiative. First, the C/U sector has characteristics that are highly conducive to a self-auditing approach. Key features of the sector include the technical sophistication of decisionmakers (e.g., EHS staff); sensitivity to public image; peer pressure between schools to maintain clean environmental records; and a mutually supportive exchange of technical information between schools.

Second, the C/U Initiative has been well managed and administered. State regulators and other stakeholders complimented EPA's management of the program, highlighting EPA's willingness to coordinate with the states, the open information exchange between EPA and the C/Us, and the quality of EPA outreach efforts such as workshops and guidance materials. By providing C/Us with a point of contact at the Agency, the program has improved communication and coordination between EPA and the C/Us. This positive rapport represents a noteworthy contrast to the adversarial relationship that often prevails in regulatory programs and has contributed to the overall success of the C/U Initiative. EPA may wish to consider ways in which the Agency can maintain this relationship through a continued presence in the C/U sector.

The evaluation also considered whether the self-audit approach could be readily transferred to other regulated sectors or other EPA regions. Based on a qualitative review of the extent to which other sectors have features similar to the C/U sector, it appears that the approach may hold promise

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for sectors such as hospitals and research labs. In particular, these sectors possess the structure (e.g., many geographically scattered facilities), technical sophistication, and image sensitivity that characterize the C/U sector. Likewise, several other EPA regions are already applying the self-audit approach to manage compliance at colleges and universities. The success of these efforts is yet to be determined, but it is possible that the dominance of large, public university systems in some regions may offer advantages (e.g., resource sharing, system-wide auditing) not realized in New England where smaller private campuses dominate. Overall, we recommend that relevant regions implement a comparative analysis of the self-audit programs completed thus far in order to identify key determinants of success that may guide future initiatives.

In summary, this evaluation indicates that the New England C/U Initiative has successfully realized its key objectives, achieving compliance and environmental benefits with limited enforcement resources. Participants have implemented numerous corrective actions in response to audit findings and also have introduced long-term management changes designed to improve environmental performance. Collaboration between EPA and the schools has been extensive, and the participants speak highly of the technical support they have received. This collaboration has allowed C/U environmental managers to meet their obligations and, in some cases, to move beyond basic compliance and institute innovative measures such as environmental management systems.

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LIST OF ACRONYMS

AI - Audit Initiative

BMP - Best Management Practice

C/U - College and University

DEC - Department of Environmental Conservation

DEP - Department of Environmental Protection

EHS - Environmental Health and Safety

EMS - Environmental Management System

EPA - U.S. Environmental Protection Agency

NE - New England

RCRA - Resource Conservation and Recovery Act

SPCC - Spill Prevention Control Countermeasure

UML - University of Massachusetts, Lowell

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BACKGROUND AND OBJECTIVES

EPA New England has developed and implemented a variety of innovative programs designed to improve environmental results at colleges and universities (C/Us). Among these, the New England Colleges and Universities Initiative (the C/U Initiative) provides compliance information and training to C/Us; promotes innovative self-audit and environmental management system (EMS) initiatives; and encourages environmental best management practices. The overall goal of the program is to improve environmental performance at C/Us while enhancing environmental awareness on campus.

Having completed several phases of the C/U Initiative, EPA is interested in evaluating the effectiveness of the program. The evaluation focuses on two key project components: the Audit Initiative and the EMS Initiative. The Audit Initiative established a self-auditing process for C/Us to assess compliance with environmental requirements, disclose violations, and address the problems identified. The EMS Initiative is designed to give C/Us a more comprehensive understanding of their environmental impacts, promoting environmental compliance through technical support; in particular, EPA is involved in funding academic partners who deliver EMS training. While we examine both components, the evaluation focuses primarily on the Audit Initiative (as requested by EPA).

This evaluation was designed to:

- 7 determine if C/Us are implementing preferred environmental practices as a result of the C/U Initiative and characterize the impact of these practices;
- 7 examine what factors motivate C/Us to take part in the program; and
- 7 examine the applicability of the C/U Initiative approach to other EPA regions or

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other sectors of the regulated community.

Given these objectives, this study may appeal to several different audiences. First, it will help EPA New England better understand the benefits of the C/U Initiative and make future modifications to increase the efficiency of similar initiatives. Second, other EPA regions may find the report useful in considering the value of implementing similar initiatives to regulate the C/U sector. Finally, the regulated community, particularly environmental health and safety (EHS) managers at C/Us, may find the report useful. For instance, a university choosing not to participate in the Audit Initiative may be influenced by the satisfaction expressed by survey respondents performing self audits.

OVERVIEW OF THE C/U INITIATIVE

Launched in 1999, the C/U Initiative is a coordinated enforcement/compliance assistance effort that seeks to increase the overall environmental awareness and performance of C/Us in New England. The components of the integrated strategy work together to improve C/Us' understanding of their compliance obligations; help schools take stock of their compliance status; make them aware of beyond-compliance opportunities; and encourage the use of sound management tools and practices. Because the New England C/U Sector comprises numerous facilities with diverse environmental management problems, it is potentially difficult to achieve compliance through traditional means such as inspections and enforcement penalties. Therefore, the C/U Initiative is designed to leverage enforcement resources, achieving the greatest degree of compliance at limited enforcement expense to regulatory agencies.

The C/U Initiative has proceeded in three phases:

- Phase 1 provided basic regulatory compliance information to C/Us electronically and through workshops, and continued targeted enforcement efforts.
- Phase 2 included the Audit Initiative and the Environmental Management System (EMS) Initiative. Schools opt into the Audit Initiative voluntarily, agreeing to implement audits of their facilities and correct problems identified in these self audits. In exchange, EPA waives certain fines and assigns a low inspection priority to schools participating in the program. The Audit Initiative is administered in accordance with EPA's 1995 Audit Policy, a set of guidelines for administering self-policing programs in selected regulated sectors. The EMS Initiative strives to move the C/U sector toward implementation of EMSs, and encourages schools to take better account of their environmental footprint.

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- Phase 3, currently in progress, encourages beyond-compliance efforts and strives toward sustainable campuses at New England C/Us. Specifically, this phase promotes broader use of best management practices and integration of environmental management concepts into campus design (e.g., green buildings).

To illustrate the different components of the C/U Initiative, the logic model in Exhibit 1-1 provides a graphical representation of the relationships between program inputs, outputs, and intended outcomes. Key components include the following:

- **Goals** define the overarching aims of the Initiative. These set the broad principles that guide the rest of the logic model, and are the criteria against which program accomplishments can be evaluated. Ideally, each component of the Initiative should be consistent with program Goals.
- The **Phases** of the Initiative, introduced above, are not strictly sequential – completion of Phase 1 is not necessary for the initiation of Phase 2 – but roughly reflect the steps involved in the Initiative.
- **Activities/Outputs** are the specific actions taken to achieve program goals and the immediate products that result. Under the C/U Initiative, these products include various guidance materials and workshops generated by EPA New England, as well as products of C/U efforts, such as completed self audits.
- **Short-Term Behavioral Outcomes** are the changes in C/U environmental management practices or changes in environmental managers' skills or perspectives that are causally linked to the C/U Initiative.
- **Long-Term Behavioral Outcomes** differ from short-term outcomes in both the nature of the behavioral changes and the time frame in which they are achieved. Long-term behavioral outcomes are broader in scope and often build upon the progress of short-term behavioral outcomes. For instance, while a short-term behavioral outcome might be the implementation of a specific BMP within a specific laboratory or department, a longer-term outcome would be a broad-based application of BMPs campus-wide.
- **Long-Term Environmental Outcomes** parallel the overarching goals of the Initiative, and are the environmental benefits that flow from the procedural, operational, and behavioral changes.

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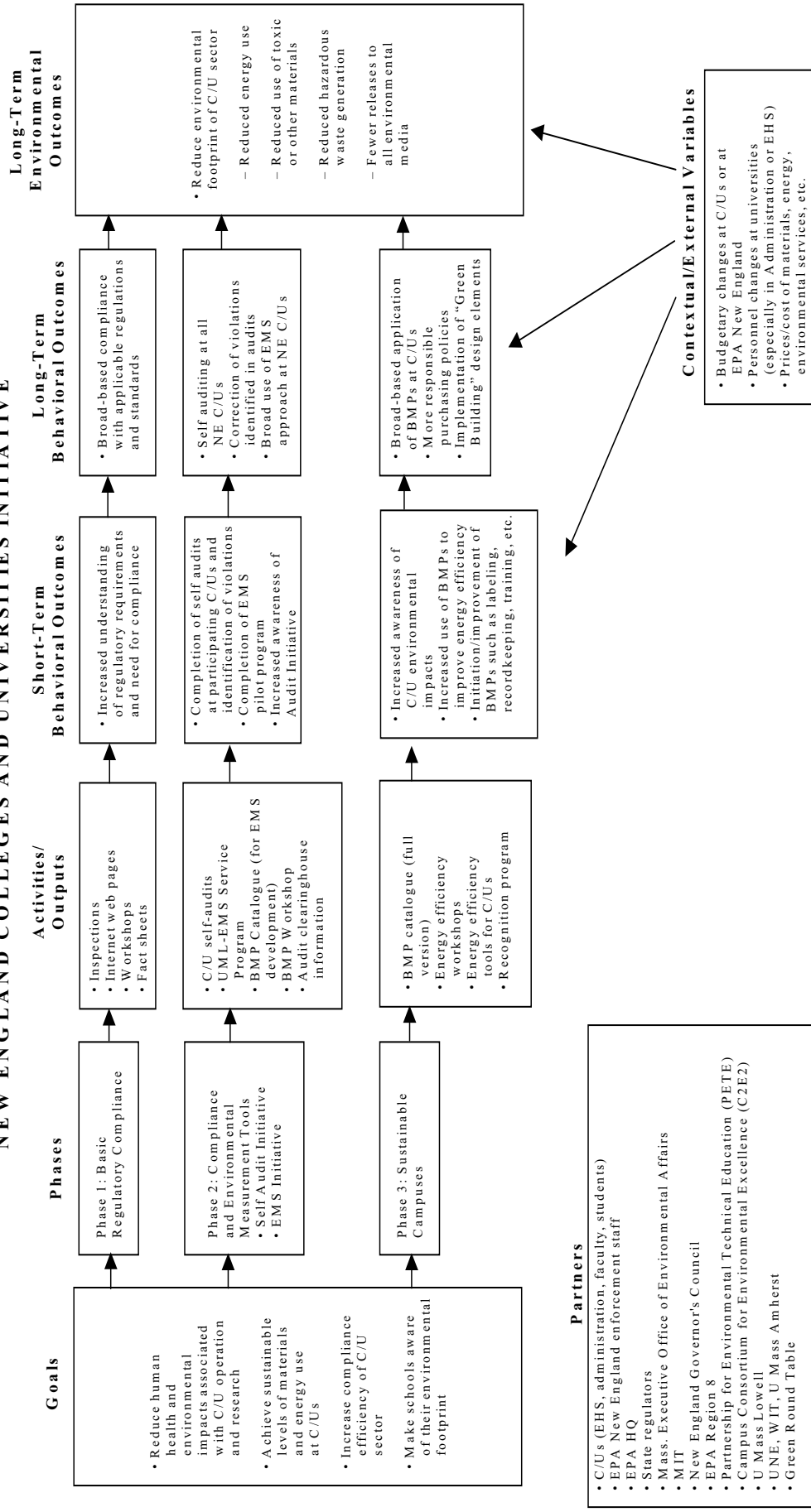
- **Partners** are the parties/organizations involved with the C/U Initiative. These include the schools themselves; State and Federal regulators; trade organizations; and other groups dedicated to the sector-specific regulatory needs of colleges and universities.
- **Contextual/External Variables** are factors, not directly controlled by the Initiative, that may affect how the program performs. For example, budgetary changes implemented by the university administration may influence whether a school participates in the C/U Initiative.

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EXHIBIT 1-1: LOGIC MODEL FOR NEW ENGLAND COLLEGES AND UNIVERSITIES INITIATIVE



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REPORT STRUCTURE

The remainder of this report is structured as follows:

- 7 **Chapter 2:** This chapter reviews the methodology used to evaluate the C/U Initiative, including the survey of Audit Initiative participants and additional interviews with non-participants, regulators, and other stakeholders.
- 7 **Chapter 3:** This chapter examines the effectiveness of the Audit Initiative using data from the survey of participants and other supplementary information sources.
- 7 **Chapter 4:** This chapter provides a preliminary evaluation of the EMS Initiative based on data gathered in the survey.
- 7 **Chapter 5:** This chapter examines the potential transferability of the self-audit approach to other regulated sectors, as well as the transferability of the C/U Initiative to other EPA regions.
- 7 **Chapter 6:** This chapter summarizes the key findings of the evaluation and the implications of the findings for future evaluation efforts.

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The C/U Initiative evaluation is built upon two key sources of data:

- 7 A survey of C/Us participating in the Audit Initiative; and
- 7 A series of satellite interviews with regulators and non-participating C/Us.

Below, we describe these two data collection efforts in detail.

SURVEY OF AUDIT INITIATIVE PARTICIPANTS

In this evaluation, the primary source of information on the C/U Initiative is the program participants themselves. We assembled a survey of participating C/Us, asking them to address the impact of the Audit Initiative and EMS Initiative on their environmental management behavior and provide insight into the strengths and weaknesses of the program's design. Below, we describe the survey, discussing how we selected a sample of Audit Initiative participants and how the survey was implemented.

Selection of Interviewees

We surveyed participants in the Audit Initiative (AI), contacting environmental professionals at a representative sample of C/Us. The first step in selecting a sample was to define the full pool of all AI participants from which the sample would be drawn. We began with a database provided

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by EPA New England.¹ This database lists a total of 169 AI participants. In consultation with EPA New England, we selected a sample stratified by three key variables -- state, school size, and public/private status -- found to be significant in a previous survey of C/U Initiative participants conducted by EPA New England. The original list of AI participants already included the location (state) and public/private status of each school. To add the size information, we drew undergraduate enrollment data from *Facts 1999*, a directory of New England colleges and universities provided by EPA New England. This publication lacked enrollment data for a number of schools; therefore, we supplemented the size data using information from several college and university websites.² We removed from the pool the remaining AI facilities for which enrollment data were either not readily available (e.g., small satellite campuses) or inapplicable (e.g., research centers, access roads). As a result, the pool decreased in size from 169 to 139.

With the pool fully defined by state, size, and public/private status, we drew a representative sample. Consistent with prior survey efforts conducted for the C/U Initiative, EPA New England recommended that IEc sample 55 (roughly one-third) of the AI participants. To ensure that the sample reflects the characteristics of the population from which it was drawn (in terms of state, enrollment size, and public/private status), we followed several steps:

1. We arranged schools by state (CT, ME, MA, NH, RI, VT), undergraduate enrollment category (less than 2,500, 2,500 to 10,000, and larger than 10,000), and type (public versus private).
2. From this list, we established the percent of schools in each unique category. For example, we determined the percent of all Connecticut schools that are small (less than 2,500 undergraduates) and private.
3. We then applied these percentages to our target sample size of 55 C/Us, determining the approximate number of schools to interview in each category to ensure that the respondents reflect the distribution of the pool in terms of state, size, and public/private status. The distribution of the sample is summarized in Exhibit 2-1. The numbers in parentheses indicate where the final set of interviews completed differs from the targeted sample size for a given subgroup; for example, while the sampling yielded two Massachusetts/small/public schools, only one was interviewed (see discussion below).
4. Using the random function in Excel on each of these discrete groups, we selected the set of schools to be interviewed. Within several university systems, the same individual is charged

¹ “Audit Participants.123” last updated on October 24, 2002.

² In these instances, the data reflect 2000 or 2001 enrollment figures.

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with managing the environmental programs at multiple university facilities (e.g., all twelve of the community colleges in Connecticut that participated in the program have the same environmental manager). In states where university systems had such centralized management, the random function often chose an excessive number of facilities with the same contact person. For the sake of diversity, several of these facilities were replaced by C/Us with different contacts. Finally, the pool contains only one school with an enrollment larger than 10,000; because of its unique size, we included this school in the sample without regard for random selection.

Exhibit 2-1 NUMBER OF FACILITIES IN EACH SAMPLE CATEGORY BASED ON DISTRIBUTION OF ALL AUDIT INITIATIVE PARTICIPANTS						
State	< 2,500		2,500 to 10,000		> 10,000	
	Public	Private	Public	Private	Public	Private
Connecticut	5	2	4	2 (1)	1	0
Maine	2	2	2	0	0	0
Massachusetts	2 (1)	10	8 (6)	3	0	0
New Hampshire	0	1	0	0	0	0
Rhode Island	0	1	0	1	0	0
Vermont	6	3	1	0	0	0

Note: Numbers in parentheses indicate where the final set of interviews completed differs from the targeted sample size.

Survey Questionnaire

The survey questionnaire was developed in close consultation with EPA. It reviews several aspects of the C/U Strategy, including outreach and education efforts, the Audit Initiative, and the EMS Initiative. Consistent with Paperwork Reduction Act requirements, EPA submitted an Information Collection Request (ICR) to the Office of Management and Budget that included the questionnaire and the overall sampling plan. The ICR was approved under OMB #2020-0015. The final questionnaire is included an appendix to this report.

Survey Implementation

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In implementing the survey, we first contacted the sampled C/Us via e-mail or fax to ask for their participation in the telephone survey.³ We provided a copy of the survey questionnaire to the potential respondents at this time. The message emphasized that written responses were not necessary, but that we were distributing the survey in advance to streamline the telephone interview and give the respondents time to gather information from co-workers, if necessary.⁴ Over the course of the next two weeks, we contacted the potential respondents by telephone to arrange the interviews.

In several instances, sampled respondents were not available for interviews. A mix of factors contributed to this outcome. First, some individuals familiar with the self audits were no longer in their position at the school. Some sampled respondents were simply too busy to take part or were not interested in assisting, and therefore did not return calls requesting an interview. In these cases, we eliminated the C/U from the sample and replaced it with another AI participant with similar location, size, and public/private characteristics.

At the outset of each interview, respondents were reminded that all information provided would be confidential, i.e., data would be aggregated and no responses would be attributed to individual interviewees. Interviews were completed by leading respondents through the questionnaire, although in a few instances respondents declined to answer certain questions they considered not applicable to their circumstances or for which they lacked adequate knowledge.

In total, interviews for 52 schools were completed. Time and resource constraints prevented completion of the planned set of 56 schools.

Data Entry and Analysis

Following each interview, the resulting data were entered into a Microsoft Excel spreadsheet. Data for simple, multiple-choice questions were entered in a manner that would allow simple computation of percentages and counts (e.g., responses to yes/no questions were coded as Y/N). In contrast, a number of questions in the survey are open-ended, e.g., respondents were asked to describe short-term corrective actions pursued in response to audit findings. For these questions, we entered text passages summarizing the remarks made by respondents. In the data analysis stage, we coded the responses to allow analysis of the findings, identifying categories of similar responses and compiling the data accordingly. For instance, to analyze short-term corrective actions, we

³ E-mail and fax information was unavailable for a small subset of sampled C/Us. For these respondents, we made initial contact with the respondent by phone.

⁴ One respondent chose to return a survey form completed in writing.

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identified generalized categories such as spill prevention, cleanout of storage areas, labeling, etc.; this coding allowed analyses such as ranking of most frequent responses to an open-ended question.

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In the analysis, some of the data are stratified by key variables. For instance, we compare public and private schools to determine if they differ in key areas. We also stratify some responses by school size. Only one truly large school (greater than 10,000 undergraduates) exists in the sample. Therefore, when stratifying by school size, we define “small” schools as those less than 2,500 undergraduates and “large” schools as those with greater than 2,500 undergraduates.

ADDITIONAL INTERVIEWS

To supplement the survey data, we performed two additional sets of interviews: (1) interviews with C/Us choosing not to participate in the Audit Initiative; and (2) interviews with government regulators and EPA program managers involved with the C/U Initiative. Our approach to these interviews is described below.

Interviews with Non-Participants

The objectives of the interviews with non-participants were to determine what factors influenced the C/Us’ decision to not participate and consider the implications of their decisions for future initiatives. The questions we posed included the following:

- 7 Did you know about the AI? If yes, how did you find out about the initiative?
- 7 Were the basic procedures and objectives of the AI clear to you?
- 7 What were the primary factors that led to your decision not to participate?
- 7 Would you consider participating in a future initiative if it operated the same way and offered the same incentives?
- 7 Would the experience and opinions of AI participants affect your willingness to participate in future self-audit initiatives?
- 7 If you would not participate in the same program, are there programmatic changes that would lead you to participate? Are there additional incentives that would encourage you to participate?

Random selection of the interviewees was complicated by that fact that some schools were precluded from participating in the AI due to their enforcement histories. Therefore, IEc requested that EPA-New England recommend non-participants for the interviews. Based on the recommendations, we interviewed the following schools and individuals: Elisabeth Haas (University of New England); Keith Kidd (Boston College); Peter Schneider (Boston University); Zehra Schneider-Graham (UMass Boston); Brad Manning (University of New Hampshire); Stephen Morin (Brown University); and Emanuel Terezakis (Community College of Rhode Island).

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Interviews with Regulators and Other Stakeholders

The interviews with regulators and other stakeholders focused on two key topics: (1) the respondents' opinions of whether and why the C/U Initiative has been successful; and (2) the transferability of the C/U Initiative approach to other EPA regions and other sectors of the regulated community. The specific questions posed included the following:

- 7 Has the C/U Initiative been successful in your estimation? What outcomes most influence your opinion?
- 7 Are there particular aspects of the initiative that have been more or less successful than others?
- 7 Has feedback from C/Us contributed to your opinion? How so?
- 7 What has been the most challenging aspect of managing the program?
- 7 Do you believe that the Audit Initiative should be repeated in the future?
- 7 Regardless of how you view the initiative's success in New England, do you think the C/U Initiative approach (outreach, self audits, EMS promotion) would be successful in other states or EPA Regions? What factors influence your opinion?
- 7 What aspects of the C/U sector made the C/U Initiative a desirable approach?
- 7 Are there other regulated sectors that have some of these features, making the approach potentially transferrable?

We conducted interviews with the following individuals and organizations:

- 7 We conducted a group interview with Peggy Bagnoli, Ronnie Levin, and Josh Secunda of EPA New England.
- 7 We conducted individual interviews with four state regulators who assisted with implementation of the C/U Initiative, including Paul Balavender (CT DEP); Jim Dusch (ME DEP); Philip Weinberg (MA DEP); and Christine Thompson (VT DEC). EPA New England identified and provided contact information for these interviewees.
- 7 We conducted individual interviews with representatives of professional organizations who played supporting roles in administering the C/U Initiative. Interviewees included Tom Balf at C2E2 (Campus Consortium for Environmental Excellence); Kirk Laflin at New England PETE (Partnership for Environmental Technology Education); Carolyn Morwick at NEBHE (New England Board of Higher Education); and John Shea at NEBOG (New England Board of Governors). EPA New England identified and provided contact information for these interviewees.

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STRENGTHS AND WEAKNESSES OF METHODOLOGY

As context for interpreting the results of the evaluation, it is useful to highlight several key strengths and weaknesses of the methodology applied. Noteworthy strengths include the following:

- The evaluation is based on original data gathered through the survey of Audit Initiative participants, allowing us to focus on key questions regarding the impact of the program on environmental management.
- The sampling design used in the survey ensures that the sample of interviewees is representative in terms of school size, location, and public/private status.
- The survey is timely, given that C/Us recently completed their self audits in late 2002. This timing helps ensure that key actors accurately recall details of the audit process.
- Through the survey and complementary satellite interviews, the evaluation incorporates the perspectives of both the regulated community and regulators, providing more balanced and reliable information.

In addition, several weaknesses should be kept in mind in considering the evaluation findings:

- Survey respondents include only those schools that agreed to be interviewed. To the extent that schools who declined interviews were less satisfied with the Audit Initiative, the evaluation findings may be biased in favor of the program.
- The approach provides little information on the specific health and environmental impacts (e.g., reduced waste generation, reduced exposure to toxics) of the changes that C/Us have made. Interviewees were generally unable to offer quantitative evidence of the effects of environmental management changes, either because they do not track such impacts or because the changes are too recent to yield reliable information.

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As noted, this evaluation focuses primarily on the Audit Initiative (AI) component of EPA New England's C/U Strategy. This chapter examines data from the survey of AI participants as well as information from the satellite interviews to characterize the successes and shortcomings of the AI. Specifically, we consider several facets of the AI:

- **Participation:** We consider what factors motivated schools to participate in the AI, including the influence of incentives offered under the program.
- **Impact of AI on Environmental Management:** We consider the environmental management changes that the participants made in response to the self-audit findings.
- **Effectiveness of Outreach Tools:** We consider whether various technical support tools provided by EPA facilitated the self-audit process.

The final section interprets the findings and offers perspectives on whether the AI has been effective relative to its stated objectives.

PARTICIPATION

Of the approximately 300 colleges and universities in New England, roughly half chose to participate in the AI program. EPA data reviewed for this evaluation showed a total of 169 facilities enrolled, representing slightly fewer college campuses (since some campuses list multiple facilities). In general, the participants are a diverse group, with a wide size range of both public and private institutions represented. They are also geographically well distributed; schools from all six New England states enrolled, roughly in proportion to the overall geographic distribution of C/Us in the region.

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One set of questions in the survey focused on schools' decision to participate in the AI. Exhibit 3-1 summarizes the survey findings with respect to these questions. Several conclusions are noteworthy. First, a key element in EPA New England's overall C/U strategy was the use of visible enforcement actions to encourage compliance and participation in programs such as the AI. As shown, over two-thirds of the respondents acknowledged that enforcement actions against other C/Us played a role in their choice to participate in the AI.

Although enforcement actions played a role, the incentives offered under the AI program itself were more decisive in encouraging participation. Nearly all of the survey respondents stated that the AI incentives – low inspection priority and reduced penalties – influenced their decision to participate. As shown, low inspection priority was the single most influential factor according to 58 percent of the respondents. In addition, a third of the schools simply thought the initiative was a good idea or generally expressed a desire to “do the right thing” with respect to environmental compliance. This finding is consistent with the views expressed by state and federal regulators involved with the AI program. In interviews, regulators noted that the C/U sector is highly motivated to meet regulatory compliance obligations and maintain a positive public image (see additional discussion below).

As shown, most respondents were satisfied with the AI incentives. Few respondents offered ideas on how the system of incentives could be improved upon. Of those who responded, the clear preference was for a longer period during which the school would be considered a low inspection priority.⁵ Some respondents even suggested that completing a self audit should qualify the school for amnesty against future enforcement action, i.e., permanent low-inspection status.

Our interviews with schools that chose not to participate in the AI provide additional insights into the issue of participation incentives. The primary reasons that schools voiced for not participating are generally unrelated to the design of the AI program. Most chose not to take part because they had recently been the focus of an EPA or state audit or because they were participating in another environmental initiative (e.g., the New England Labs Project XL) that gave EPA and other regulators a clear idea of the school's environmental performance. Indeed, all seven schools contacted indicated a willingness to participate in future self-audit initiatives. However, non-participants did offer ideas for how the AI program could be improved to encourage greater participation:

- Some of the interviewees were unaware of the workshops and other technical outreach tools available to schools and felt that schools need better guidance on the

⁵ In instances where the number of respondents is significantly less than 52, we provide the number of respondents (N) on which the percent or ranking is based. For example, in the table, N=8 indicates that eight respondents mentioned a longer low-priority inspection period.

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potential demands of the self-audit.

Exhibit 3-1		
SURVEY RESULTS RELATED TO PARTICIPATION IN AUDIT INITIATIVE		
Indicator/Measure	Finding/Result	Conclusion/Interpretation
Percent of respondents for whom pre-existing potential for enforcement action was motivation for AI participation	73%	7 Visible enforcement actions played a role in encouraging AI participation, but are not the dominant factor (see below).
Percent of respondents reporting that AI incentives played a major role in decision to participate	96%	7 The AI incentives were very important in encouraging participation; more important than baseline potential for an enforcement action.
Ranking of incentives in terms of influence on participation	1. Low inspection priority (58%)	7 Low inspection priority was by far the most frequently mentioned factor encouraging AI participation.
	2. Initiative is a good idea/desire to “do the right thing” (33%) 3. Penalty reduction (14%)	7 Desire of C/Us to be good environmental actors is also mentioned.
Percent of respondents satisfied with incentives offered	86%	7 C/Us feel that AI incentives are adequate; program is well structured.
Ranking of most frequently suggested incentives for future audit initiatives	1. Longer low-priority inspection period or provision of long-term amnesty (N=8)	7 Most respondents were satisfied with incentives; some suggested program could be improved by offering longer period of low inspection priority status.

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- Non-participants also voiced support for the idea of a longer low-priority inspection period.
- One non-participant found the search for an audit contractor daunting and felt it would be helpful if EPA could recommend auditors.

IMPACT OF THE AUDIT INITIATIVE ON ENVIRONMENTAL MANAGEMENT

A major objective of the survey was to characterize the impact that the AI program had on environmental management at the participating schools and gather participants' views on the self-audit process. Exhibit 3-2 summarizes the survey results for relevant questions. Below, we discuss several topics: (1) the program's influence on short-term corrective actions; (2) the program's influence on long-term environmental management changes; and (3) participant views on the demands of the self-audit process.

Short-Term Corrective Actions

Three-quarters of the respondent schools took short-term actions (implemented within 60-days of completing the self audit) to correct violations found in their self audits. Other schools either had no violations or else focused their efforts on longer-term procedural changes (see below). The types of corrective actions implemented were diverse, with no single action being dominant. However, many of the top corrective actions focus on RCRA issues, including labeling of waste containers; prevention or containment of spills from oil tanks and other tanks; and removal of waste to off-campus storage or treatment facilities.

Of the respondents who implemented short-term corrective actions, just over half felt that they had adequate time to correct identified violations. However, it is noteworthy that nearly as many felt that the time provided (60 days) was inadequate. Several respondents pointed out that they needed to request extensions to allow time for certain actions (e.g., tank replacement).

Long-Term Environmental Management Changes

Virtually all of the survey respondents (96 percent) are implementing long-term procedural changes in response to their self-audit findings. Coupled with findings regarding the number of AI participants who intend to conduct future audits (see below), this result clearly indicates that the self-audit program has the potential to offer long-term environmental improvements on college

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campuses.

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Exhibit 3-2

SURVEY RESULTS ASSESSING IMPACT ON ENVIRONMENTAL MANAGEMENT

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Percent of schools taking short-term action to correct violations found in self audits	75%	7 For the majority of schools, the audits revealed potential violations that required short-term corrective action. 7 Some schools had no violations or else focused exclusively on longer-term procedural changes.
Ranking of most common short-term actions	1. Labeling of waste (31%) 2. Spill prevention/containment (31%) 3. Training/education (26%) 4. Cleanup/removal of waste (26%)	7 RCRA issues such as waste management and spill prevention dominate short-term corrective actions.
Percent of schools that felt they had adequate time to correct problems identified in audit	56%	7 Of the schools implementing short-term corrective actions, the majority said time was adequate to correct problems found in audit. However, number suggesting that time was inadequate is significant.
Percent of schools implementing long-term procedural change in response to self audit	96%	7 Virtually all of the self audits led to long-term changes that will yield ongoing benefits. 7 C/Us don't just correct immediate problems and seek minimal compliance.
Ranking of most frequently cited long-term procedural changes	1. Improved recordkeeping and information systems (44%) 2. Labeling program (32%) 3. Continuous/periodic self-inspection system (24%)	7 Long-term changes are procedural in nature and designed to influence behavior of key actors (e.g., lab users). 7 Long-term changes do not generally involve extensive capital improvements.

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Exhibit 3-2

SURVEY RESULTS ASSESSING IMPACT ON ENVIRONMENTAL MANAGEMENT

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Ranking of procedural changes stratified by school size	Small: 1. Improved recordkeeping and information systems (39%) 2. Labeling program (32%) 3. Continuous/periodic self-inspection system (19%) 4. Improved training programs (19%) Large: 1. Improved recordkeeping and information systems (53%) 2. Labeling program (32%) 3. Continuous/periodic self-inspection system (32%) 4. Improved training programs (16%)	7 Large and small schools instituted the same types of long-term changes in response to the self-audit findings. Rank order is identical for large and small schools.
Percent of respondents who intend to conduct another audit	81%	7 The majority of C/Us feel that the AI experience was valuable and intend to perform voluntary self audits in the future. 7 Demonstrates that the AI program will have lasting impact on environmental management behavior and attitudes.
Percent of respondents who intend to perform another audit, stratified by school size	Small: 79% Large: 84%	7 Large and small schools do not differ greatly in terms of their likelihood to perform future audits.

Exhibit 3-2

SURVEY RESULTS ASSESSING IMPACT ON ENVIRONMENTAL MANAGEMENT

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Percent of respondents who intend to perform another audit, stratified by public/private	Public: 71% Private: 92%	7 Private schools are somewhat more likely to perform future audits.
Ranking of most demanding aspects of self audit	1. Time commitment (52%) 2. Cost (e.g., consultant) (25%) 3. Compliance/audit logistics (16%)	7 Time demand on EHS manager and staff is by far the most demanding aspect of audit. 7 The cost of consultants and compliance measures was another major demand. 7 Some participants just felt overwhelmed with requirements and procedures; figuring out what to do was greatest demand for them.
Percent of respondents for whom audit allowed them to address specific management goals	78%	7 Majority of schools found that audit helped them address pre-existing management goals; in particular, audit helped attract the attention of administration and demonstrate need for attention to environmental management issues.
Ranking of management goals most frequently addressed by audit	1. Improved waste management systems (66%) 2. Campus-wide environmental management approach (26%) 3. Improved air emissions control or monitoring (13%)	7 Many schools had pre-existing goals of improving waste management on campus and self-audit often provided the catalyst needed to address these issues. 7 Some schools saw self-audit as a component of a larger plan to practice holistic environmental management through campus-wide system.

Exhibit 3-2

SURVEY RESULTS ASSESSING IMPACT ON ENVIRONMENTAL MANAGEMENT

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Ranking of groups who provided support in completing self audit	<ol style="list-style-type: none"> 1. C/U President (83%) 2. EHS/Facilities staff (79%) 3. Faculty (60%) 4. Peers (56%) 5. EPA New England (42%) 	<p>7 Support of senior administration is essential, especially with respect to funding.</p> <p>7 Getting the audit done occupies the time and attention of EHS/Facilities managers and their staff</p> <p>7 Faculty are frequently the link to lab users; their support is essential to implementing environmental management changes.</p>

Most of the long-term changes cited are procedural in nature and appear designed to influence the behavior of key actors involved in environmental management. Improved recordkeeping and information systems was the most commonly cited long-term change introduced in the wake of the self audits (see full list in Exhibit 3-3). Respondents noted how changes such as improved waste manifest systems and computer systems for sharing and storing information were a key outcome of the audits. Other commonly mentioned changes include the introduction of labeling programs to improve waste management and the establishment or improvement of training programs for lab users and other individuals with environmental management responsibilities.

Exhibit 3-3	
LONG-TERM ENVIRONMENTAL MANAGEMENT CHANGES CITED BY AUDIT INITIATIVE PARTICIPANTS	
Management Change	Number of Schools Citing Change
Improved Recordkeeping and Information Systems	22
Labeling Program	16
Continuous/Periodic Self-Inspection System	12
Improved Training Programs	8
Improved Waste Management Systems/Facilities	7
Revised Purchasing Practices	7
EHS/Facilities Staffing Changes	6
Revised Spill Plan	2
Other	7

As another indicator of the long-term impact of the AI, the survey asked respondents whether they intend to conduct additional self-audits in the future, now that the EPA program is complete. Overall, 81 percent of the respondents said they intend to conduct future audits. As noted, this result suggests that the AI experience was valuable for the participants. We also examined whether the intention to conduct future audits varied by school size or public/private status. Although the difference by size is minor, it does appear that private schools are somewhat more likely to perform future audits than public (92 percent versus 71 percent). One potential explanation for this difference may be that private schools have greater resources to commit to long-term audit programs

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while budget constraints and uncertainty at public schools limit environmental management to more immediate concerns.

The long-term impact of the AI program is also reflected in the fact that the self-audit process helped many participants realize management goals. In all, 78 percent of the respondents said that the self-audit process allowed them to address pre-existing environmental management goals. Some specifically remarked that the audit helped attract the attention of C/U administrators and called attention to the need for more systematic environmental compliance on campus. Improved waste management was by far the most frequently mentioned management goal that was addressed as a result of the audits.

We also examined the extent to which large and small schools differ with respect to planned long-term changes.⁶ However, as shown in Exhibit 3-2, the ranking of long-term, procedural changes is identical for small and large schools, suggesting that the influence of the AI on long-term environmental management is independent of school size.

Demands Associated with Completing Self-Audits

The survey also asked AI participants to identify the most demanding aspect of completing the self-audit (see Exhibit 3-2). Over half of the respondents said that the greatest demand was the overall time commitment associated with planning and implementing the audit. Specifically, the responses offered suggest that EHS and facilities directors leading the audit process were stretched by the demands of the audit, as clearly indicated by remarks such as “it sucked up my life.” Time demands extended to staff as well as to faculty and lab workers who contributed to the audit.

The second most frequently cited demand associated with the audit was cost. In particular, schools that required the support of a consultant to complete the audit noted that the consultant cost was a significant budget issue for their department.

The survey also asked respondents to identify the groups that played an important role in helping complete the self-audits. In general, the groups cited most frequently were those internal to the C/U (as opposed to regulators or professional organizations). Most notably, 83 percent of the respondents noted the importance of the C/U president, highlighting the role that the president plays in approving funding for environmental management and in voicing a commitment to environmental initiatives. Other key groups are EHS staff and faculty in relevant academic departments (e.g.,

⁶ As noted, for the purpose of stratifying survey responses, we define “small” schools as those less than 2,500 undergraduates and “large” schools as those with greater than 2,500 undergraduates.

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chemistry). These groups were sometimes responsible for crafting elements of the disclosure documents and represent the link to “on-the-ground” implementation of environmental management initiatives.

EFFECTIVENESS OF OUTREACH TOOLS

The overall C/U Initiative includes outreach and technical support efforts designed to assist schools with their self audits and other aspects of environmental management. Key survey results evaluating these efforts are summarized in Exhibit 3-4.

Respondents were first asked to rate various outreach tools as “very useful,” “useful,” “not useful,” or “not applicable.” Overall, respondents were quite familiar with the EPA outreach tools; in only two instances did a respondent say they were not familiar with any of the tools offered. In general, the respondents spoke highly of the EPA outreach tools, rarely characterizing any of the tools as “not useful.” The informational workshops and the list of common violations were the tools most frequently characterized as “very useful”; in addition, both rank high on the list of tools characterized as “useful.” Other key tools frequently cited as “useful” or “very useful” include EPA New England’s C/U Initiative website (where many of the materials are offered), the SPCC regulations, and regulatory interpretations.

We examined the usefulness of the workshops more closely and considered whether small and large schools differ in their assessments of the workshops. First, it is noteworthy that of the 18 respondents that did not attend a workshop, all but three were small schools. This suggests that small schools may lack the resources to attend or may be harder to reach when informing C/Us of the workshops. Second, of the schools that did attend a workshop, large schools were slightly more likely to rate the workshop as “very useful” (56 percent versus 39 percent). One possible explanation for this pattern may be that large schools implemented their audits without consultant help and therefore found the workshops critical to their audit, while small schools may have secured consultant assistance, making them less directly reliant upon the workshop information. Finally, it is noteworthy that *all* schools who attended a workshop rated the experience as either “very useful” or “useful”; i.e., none characterized the sessions as “not useful.”

The survey also asked respondents to comment on whether the tools were adequately detailed and tailored to the unique needs of the C/U sector. For respondents who answered this question, the majority (88 percent) were satisfied with the tools in this respect. Many of the respondents (23 schools) were unable to address the overall detail and degree of customization of the tools. Of these, many implemented the audit through a consultant or used only one or two of the tools; hence, they were unable to comment on the tools at this level of detail.

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The survey also examined how existing tools could be improved and whether respondents desire additional tools. We review the findings below in the Areas for Improvement section.

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Exhibit 3-4

SURVEY RESULTS ASSESSING OUTREACH TOOLS

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Ranking of tools (workshops, guidance materials) according to usefulness	<p>“Very Useful”</p> <ol style="list-style-type: none"> 1. Workshops (N=16) 2. Common violations list (N=16) 3. Regulatory interpretations (N=14) 4. SPCC regulations (N=13) <p>“Useful”</p> <ol style="list-style-type: none"> 1. Website (N=29) 2. Common violations list (N=19) 3. SPCC regulations (N=19) 4. Workshops (N=18) 	<p>7 Overall, respondents found many of the EPA tools useful. The workshops, common violations list, SPCC regs, and the general website were cited most frequently.</p> <p>7 Respondents rarely characterized any of the tools as “not useful.”</p>
Percent of workshop attendees reporting that workshop was “very useful” or “useful” in performing self audit	100%	7 All workshop attendees found the workshop useful when performing their self audits.
Percent of workshop attendees reporting that workshop was “very useful” in performing self audit, stratified by school size	<p>Overall: 47%</p> <p>Small: 39%</p> <p>Large: 56%</p>	7 Large schools appear to benefit more from the workshops than small schools. This may be because many of the smaller schools receive consultant support in implementing audits, while larger schools perform audits independently.
Percent of respondents who feel that tools are specific enough	88% (N=29)	7 Of those offering an opinion, most respondents felt that the tools were adequately detailed and tailored to the C/U sector.

Exhibit 3-4

SURVEY RESULTS ASSESSING OUTREACH TOOLS

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Ranking of most frequently mentioned suggestions for improving the existing tools	<ol style="list-style-type: none"> 1. More convenient workshop locations (N=10) 2. Simplify website; make materials easier to find (N=6) 3. Earlier notification of workshop dates and locations (N=5) 4. Tailor materials to different types/sizes of C/Us (N=3) 	<p>7 Few respondents offered suggestions; generally satisfied with tools.</p> <p>7 Remotely located schools find it difficult to attend workshops; cost of time and travel are significant.</p> <p>7 Website is useful, but some respondents had trouble navigating it and finding key materials.</p>
Ranking of most frequently mentioned suggestions for additional information/tools	<ol style="list-style-type: none"> 1. Anonymous help system, phone or Internet-based (N=9) 2. Regulations better tailored to C/Us (N=4) 3. Sample fines for common violations (N=3) 	<p>7 Few respondents offered suggestions for additional tools beyond those offered.</p> <p>7 Of those providing responses, several would like to seek audit advice without fear of attracting regulator's attention.</p> <p>7 Several respondents feel that the environmental regulations need to be changed to better fit C/U issues and circumstances.</p>

OVERALL ASSESSMENT OF AUDIT INITIATIVE SUCCESS

Success Against Program Goals

The success of the Audit Initiative can be gauged relative to the goals identified in the logic model presented in Chapter 1. Overall, the available data suggest that EPA has realized key outcomes targeted for different stages of the AI program. Three categories of outcomes are relevant:

- **Short-Term Behavioral Outcomes:** Expected short-term outcomes included increasing awareness of the AI and completion of self-audits at the participating schools. Both of these behavioral outcomes have been realized. Even the non-participants interviewed indicated that they were aware of the AI program, the available technical support tools, and the potential benefits of performing a self audit. Likewise, all but one of the AI participants surveyed indicated that their self audit was complete.
- **Long-Term Behavioral Outcomes:** A key long-term outcome expected under the AI program is correction of violations found in the self-audits. This outcome is being realized, as evidenced by the fact that the vast majority of AI participants have implemented short and long-term changes designed to address audit findings. Another expected long-term behavioral outcome implementation of self auditing at all New England schools. As noted, about half of the C/Us in New England participated in the AI, and of these, over 80 percent intend to conduct additional audits in the future. Likewise, most of the non-participants interviewed suggested that they would consider taking part in future self-audit programs. While not definitive, these findings suggest that the outcome of widespread self auditing is being realized.
- **Long-Term Environmental Outcomes:** It is harder to characterize success relative to the desired long-term environmental outcomes of the C/U Initiative. Virtually none of the schools surveyed were able to offer specific estimates of environmental impacts such as reduced use of toxic materials or reduced releases to environmental media. However, the types of changes implemented in response to the audit (e.g., spill controls, waste removals, improved recordkeeping and information management, labeling programs, training) suggest that these goals will be at least partially realized.

Factors Influencing Success

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Remarks gathered in our satellite interviews with regulators offer further indication of the success of the AI and the factors behind this success. Most notably, state regulators with whom we spoke were enthusiastic about the AI, feeling that it was well organized, administered, and had a positive impact on the C/U sector's environmental compliance. The role of state regulators varied, but they generally assisted in implementation of the program and review of the disclosure reports submitted by C/Us. State regulators highlighted several programmatic factors contributing to the success of the AI:

- **Coordination with States:** Most state regulators indicated that EPA New England was open to comments from the states, frequently sending draft documents to the states for review before sending them to the C/Us.
- **EPA Program Management:** Several state regulators mentioned that the level of involvement from EPA New England made a significant difference to C/U participation. The lines of communication between the C/Us and EPA were well developed, with a free exchange of information.
- **Overall Initiative Structure:** State regulators also spoke highly of the overall structure and approach used in the AI. They felt that the progression of workshops, assistance tools, and self-audits encouraged C/U participation, enhanced awareness, and encouraged compliance.

In addition, EPA New England program managers highlighted several aspects of the C/U sector that make it amenable to a self-auditing approach. These characteristics include technical sophistication, sensitivity to public image, peer pressure among schools, and the flow of information between schools. These factors are discussed more fully in the context of the transferability of the C/U Initiative approach (see Chapter 5).

Areas for Improvement

The survey responses and satellite interviews both yielded suggestions for how future self-audit programs (either in the C/U sector or in other sectors) could be improved. Areas for improvement implied by the survey responses include the following:

- Respondents were asked to identify ways that the current set of outreach tools could be improved. The most common responses were to hold the workshops in more convenient locations for more remote schools, to provide earlier notification of the workshop dates, and to make the EPA New England website easier to navigate.

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- Respondents were also asked to identify additional tools to assist self audits. While relatively few respondents offered ideas, the most popular suggestion was a phone or Internet-based help system that could be accessed anonymously.

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- Although respondents were generally satisfied with the incentives offered under the AI, some suggested that the period during which the school is considered a low inspection priority is too short. These respondents believe that a longer period, or even longer-term amnesty, would be justified.
- As noted, many of the schools completing short-term corrective actions felt that the 60-day window was inadequate and noted that extensions were frequently needed. If legally feasible, EPA may wish to consider offering a longer window of time for correcting violations.

Interviews with schools that chose not to participate in the AI also produced useful suggestions for refining future self-audit initiatives:

- Echoing the survey respondents, some of the non-participants felt a longer period of low inspection priority was appropriate and that a longer window of time to correct violations would be preferable.
- Some of the non-participants were unaware of the workshops and other outreach tools, suggesting that EPA may wish to promote these tools more aggressively.
- One of the non-participants suggested that EPA identify a legal means of recommending audit consultants to simplify the task of searching for a consultant.

Finally, interviews with regulators and professional organizations also yielded a number of suggestions for improving future audit initiatives:

- Some interviewees felt a need for better follow-up on the audits and the associated corrective actions to validate school claims. EPA regulators acknowledged that a spot check of schools performing audits may be desirable.
- One regulator was concerned that some of the audit reports lacked depth and should be more rigorous.
- EPA New England also noted that the audit program could be enhanced with an award program that recognizes the accomplishments of selected schools that implement particularly innovative changes in response to their self audits.

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Although this evaluation focuses primarily on the Audit Initiative, the survey also gathered preliminary information related to EPA New England's EMS Initiative. Through training and financial support, the EMS Initiative encourages schools in the C/U sector to implement environmental management systems. While we did not evaluate individual components of the EMS Initiative (e.g., the EMS Pilot Program), the survey did ask Audit Initiative respondents about their current EMS activities and factors that motivated their choice of whether or not to implement an EMS.

In this chapter, we examine data gathered from the EMS portion of the survey. We first examine the group of schools that are implementing or considering EMSs, discussing their characteristics and the types of practices implemented. Next, we consider schools that do not plan to implement an EMS and the reasons behind their decision. Finally, we provide a brief preliminary assessment of how the EMS Initiative is contributing to achievement of the overall C/U Initiative goals.

CURRENT EMS ACTIVITIES AT COLLEGES AND UNIVERSITIES

The first survey question regarding EMS implementation on college campuses identified four categories of schools: schools that have implemented an EMS; schools that are planning an EMS; schools that are considering implementing an EMS; and schools that do not intend to implement an EMS. Exhibit 4-1 shows a breakout of the responses. As shown, slightly less than half of the 52 respondents are considering, planning, or are already implementing an EMS; the remainder do not intend to implement an EMS.

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Exhibit 4-1

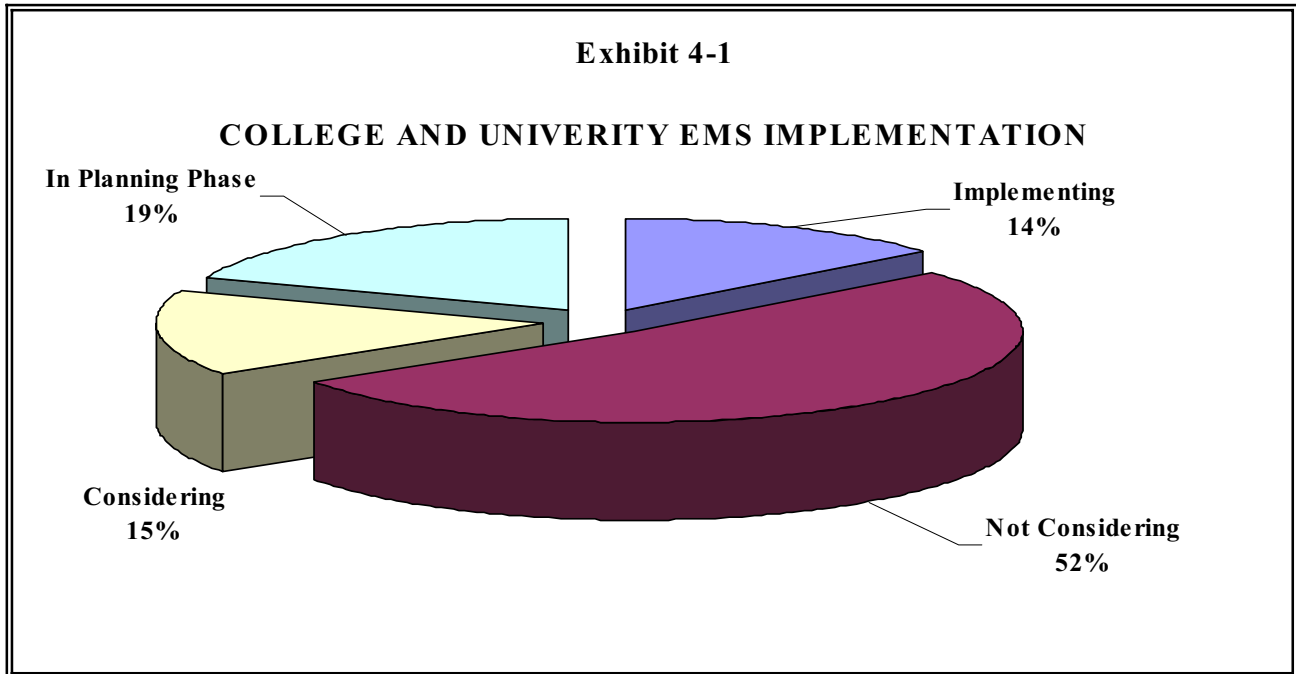


Exhibit 4-2 summarizes a variety of additional survey results that further characterize the 25 respondent schools implementing, planning, or considering an EMS. First, we stratify the EMS schools by size. Thirteen small schools and 12 large schools are implementing or considering EMSs. The 13 small schools represent 39 percent of all the small schools in the survey sample, while the 12 large schools represent 63 percent of all the large schools in the sample. These results suggest that large schools are somewhat more likely to implement or consider an EMS. One explanation may be that a larger campus with diverse facilities necessitates a more systematic set of environmental management procedures. In contrast, small schools may not have the type of facilities (e.g., chemical research and photography labs) that require hazardous waste management or other complex environmental compliance measures. Overall, smaller-scale facilities may allow schools to manage their environmental affairs with simpler internal protocols.

Although small and large schools exhibit different patterns in terms of EMS implementation, the tendencies of public and private schools are not as distinct. Public schools appear slightly more likely to implement an EMS (see Exhibit 4-2). One possible explanation is that public schools are often part of an integrated state school system, across which resources can be leveraged to meet environmental regulations. This tendency makes them similar to large schools, i.e., facilities across multiple campuses in the system may simulate a large campus.

It is also noteworthy that most of the small schools considering or implementing an EMS are private. While cost is an issue for private schools as well as public schools, the importance of image may weigh more heavily on small private schools than cost constraints. A number of the small public schools surveyed were not affiliated with a university system and therefore did not have

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access to a larger pool of resources.

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Exhibit 4-2

ASSESSMENT OF EMS ACTIVITY AMONG SURVEY RESPONDENTS

Indicator/Measure	Finding/Result	Conclusion/Interpretation
Percent of respondents implementing or considering an EMS	48% (N=25)	<ul style="list-style-type: none"> • Nearly half of all respondents indicated that they were implementing or considering implementing an EMS. Seven of these 25 have working EMS on their campuses presently.
Percent of respondents implementing or considering an EMS, stratified by size	Small: 39% (N=13) Large: 63% (N=12)	Larger schools appear more likely to implement or consider an EMS.
Percent of respondents implementing or considering implementing an EMS, stratified by public versus private	Public: 54% (N=15) Private: 42% (N=10)	<ul style="list-style-type: none"> 7 Public schools appear slightly more likely to implement an EMS. 7 Public schools are often part of a state school system, across which resources can be leveraged and shared to meet environmental regulations.
Ranking of reasons cited for implementing or considering an EMS	<ol style="list-style-type: none"> 1. Self audit (48%, N=12) 2. EPA educational initiatives (44%, N=11) 3. Need to organize environmental obligations (28%, N=7) 	<ul style="list-style-type: none"> 7 Two major components of the C/U Initiative, educational outreach and the self-audit program, had an important impact on C/U awareness and understanding of EMS.

Exhibit 4-2

ASSESSMENT OF EMS ACTIVITY AMONG SURVEY RESPONDENTS

Indicator/Measure	Finding/Result	Conclusion/Interpretation
<p>Ranking of impediments to implementing an EMS cited by those implementing or considering an EMS</p>	<p>1. None (28%, N=7) 2. Cost (24%, N=6) 3. C/U bureaucracy/structure (20%, N=5)</p>	<p>7 Cost is a significant barrier for some schools implementing an EMS. 7 The bureaucratic, decentralized nature of the C/U system presents barriers to the successful, efficient implementation of an EMS.</p>
<p>Percent of respondents that have realized “beyond compliance” operating changes as part of the EMS</p>	<p>19% of those implementing or considering implementing an EMS realize “beyond compliance” benefits (N=3) 38% stated it was too early to indicate or the system was still in planning phase (N=6) 44% did not realize “beyond compliance” benefits (N=7)</p>	<p>7 Most of the schools are in the initial stages of implementing their EMS and therefore have not yet realized “beyond compliance” benefits.</p>
<p>Ranking of EMS benefits cited</p>	<p>1. Increased recycling (N=6) 2. Energy savings (N=4) 3. Increased compliance (N=4) 4. Increased compliance with fewer resources (N=4)</p>	<p>7 Eighteen of the 25 schools implementing or considering an EMS did not respond to this question because they are in the initial stages of implementing an EMS. 7 Of those that did respond, many schools cited multiple benefits, among which increased recycling was the most common.</p>

In a separate survey question, respondents implementing or considering implementing an EMS were asked if this decision was influenced by their participation in the Audit Initiative, EPA's educational/outreach initiatives, or the EMS pilot project. The results suggest that educational outreach and the self-audit program had an important impact on the awareness and understanding of EMS among environmental professionals at colleges and universities. Roughly half of respondents indicated that the self audit played a role, while more than 40 percent indicated the educational initiatives were important to their decision. Almost 30 percent indicated that the decision was driven by the general need to organize their environmental obligations. This response may, in fact, be linked to the self audit program and related educational initiatives. These EPA efforts increased awareness on C/U campuses of the scope of their environmental obligations. Burdened with managing multiple processes and addressing numerous regulations, environmental managers may identify the need for an integrated management system.

The survey also asked respondents to consider what factors, if any, are hindering their progress in implementing an EMS. Cost and the C/U structure/bureaucracy were the most commonly cited difficulties. Roughly one-quarter reported that the cost of an EMS posed a barrier, while one-fifth indicated that the nature of C/U institutions posed the biggest problem. With respect to C/U bureaucracy and structure, respondents noted the yearly turnover of the student population and varied schedules of faculty as a barrier to proper training. Nonetheless, nearly 30 percent indicated that they faced no significant barriers to implementation.

While one major benefit of an EMS is to coordinate and streamline compliance with environmental regulations, it can also yield "beyond compliance" environmental benefits (e.g., recycling and energy saving). However, the majority of respondents considering or implementing an EMS were in the initial stages of doing so. Therefore, only three respondents indicated they had realized "beyond compliance" benefits. In contrast, six indicated that it was too early to determine whether such benefits would be realized. An additional seven schools indicated that they had not realized such benefits. It should be noted that only two-thirds of those implementing or considering an EMS responded to this question.

In addition, the respondents were not able to provide the detailed quantitative information needed to make firm conclusions concerning the impact of EMSs. A few respondents did characterize beyond compliance benefits in general, qualitative terms; these most frequently included increased recycling and energy savings. Several also indicated that the EMS enabled them to achieve increased compliance with fewer resources.

DECISION NOT TO IMPLEMENT EMS

As noted earlier, slightly more than half of the respondent schools are not considering

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implementing an EMS. The survey asked respondents to identify the reasons behind this decision. As shown in Exhibit 4-3, one-third cited cost as a barrier to implementing an EMS. All but one of these schools is small, suggesting that cost is a particularly significant barrier for smaller institutions. An additional 15 percent indicated that they lacked the technical knowledge to implement an EMS. Again, it is noteworthy that the schools citing lack of technical knowledge are all small schools, suggesting that size can affect technical capabilities and resources.

Of the schools that do not plan to implement an EMS, 22 percent suggested that the processes currently in place to address environmental compliance approximate an EMS. In general, these schools did not feel the need to make the modifications necessary so that their existing processes could be labeled an EMS. Other schools, roughly one-third of respondents, felt that an EMS was not appropriate for their institution given the nature of their facilities. These schools did not have science or photography labs, leased the facilities from which they ran their operations, or were simply too small to consider an EMS.

In addressing the survey questions, some respondents expressed confusion about the definition of an EMS. As noted, some also suggested that the environmental management procedures they have instituted are tantamount to an EMS, but acknowledged that they have not achieved that official designation. These findings suggest that additional educational outreach to clarify EMS concepts may still be appropriate.

Exhibit 4-3	
REASONS CITED FOR NOT HAVING AN EMS	
Reason	Percent
Cost	33% (N=9)
Facilities do not require an EMS	33% (N=9)
Have internal systems that accomplish the same goal	22% (N=6)
Insufficient technical knowledge	15% (N=4)

PRELIMINARY ASSESSMENT OF EMS INITIATIVE SUCCESS

The success of the EMS Initiative can be gauged relative to the expected outcomes identified

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in the logic model presented in Chapter 1. For this evaluation, the key outcome of interest is broad use of the EMS approach at New England C/Us. Overall, the available data suggest that this outcome has been at least partly realized. In particular, more schools are aware of the EMS concept than before the introduction of the initiative. In fact, almost half of the survey respondents indicated that they were in the process of implementing, had implemented, or were considering implementing an EMS. Respondents explicitly noted that EPA's educational efforts and the self-audit process increased their awareness and interest in EMS. Forty-eight percent of those considering implementing or implementing an EMS were influenced by the self-audit, while 44 percent indicated that the EPA educational initiatives influenced their decision. However, with respect to increasing awareness of EMS, room for improvement still exists. When queried, several survey respondents were unclear about what an EMS entails and others were not aware of EPA's EMS Initiative.

Finally, while there was not uniform adoption of EMS in the wake of the EPA effort, there appears to have been movement toward EMS or EMS-like systems to ensure compliance and increase the potential for "beyond compliance" benefits. Therefore, to the extent that the broader mission of the C/U Initiative is to reduce the environmental footprint of the C/U sector, EPA's efforts show promise. The information provided in the context of both the Audit and EMS Initiatives enabled schools to change their operations and reduce their environmental impact. Most schools implementing EMS are in the early stages of the process and are therefore unable to quantify the improvements; however, some of the schools with operational EMSs indicate that the system has yielded benefits, particularly in terms of increased recycling and energy savings.

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The approach used in the C/U Initiative consists of several key elements:

- Education and technical support;
- Self-audits and corrective action in exchange for reduced penalties and lower inspection priority; and
- Visible enforcement actions to encourage participation and compliance.

This chapter examines whether this model can be transferred to regulated sectors other than C/Us, and whether the approach holds promise for the C/U sector in other EPA Regions.

TRANSFERABILITY TO OTHER REGULATED SECTORS

The information gathered for this evaluation can help determine whether the approach used in the C/U Initiative is applicable in other regulated sectors. Below, we consider the characteristics of the C/U sector that facilitated the use of a self-audit approach and then examine the extent to which other regulated sectors have similar or different characteristics.

Key Characteristics of C/U Sector

To determine the transferability of the approach used in the C/U Initiative, it is useful to first identify the features of the C/U sector that have contributed to the success of EPA New England's program. Based on our conversations with regulators and other stakeholders, the following characteristics are most noteworthy:

- **Sector Structure:** In many ways, the structure of the C/U sector precludes

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traditional command-and-control regulatory approaches. A large number of relatively small C/Us exists and they are geographically scattered. Similarly, C/Us are diverse and have environmental management issues that vary from campus to campus. As a result, it is difficult to perform frequent, thorough inspections to ensure compliance. An incentive-based approach like that used in the C/U Initiative leverages the limited regulatory and enforcement resources of EPA and the states.

- **Technical Sophistication:** The technical sophistication of the C/U sector was also instrumental to the C/U Initiative. Most C/Us took advantage of the information resources made available by EPA New England, including the workshops and guidance materials offered on the Internet. These information dissemination approaches are familiar to many C/U environmental managers, especially EHS professionals who are accustomed to attending conferences and using the Internet for research and communication. In addition, many C/U environmental managers are supported by faculty and research staff with technical expertise in engineering, waste management, and other relevant disciplines.
- **Image Sensitivity:** Public image is important to C/Us. Schools feel the need to project a favorable public image to alumni, prospective students, and major donors. Such incentives extend to the environmental management reputation of the school. Participation in the self-audit program was partly fueled by a desire to maintain a “clean and green” environmental image.
- **Peer Pressure:** Similarly, many C/Us exhibit a “keep up with the Joneses” mentality that encouraged participation in the self-audit program. One regulator mentioned that once the schools started talking and learned that others were participating, the program gained credibility and a certain degree of peer pressure emerged.
- **Communication Flow:** C/Us have formal and informal channels of communication that facilitate the flow of information. Communication within the sector helped to spread the word about major enforcement actions taken against several C/Us. While the lines of communication were initially strongest among C/U administrators, the C/U environmental managers were not as closely networked. Ultimately, however, the C/U Initiative served as a meeting point for these individuals, fostering a sense of community among them as they shared information on their self-audits and cost-effective remedies for violations.

In most cases, these characteristics combine to give the C/U sector the technical capability to pursue self-audits and the institutional incentive to “do the right thing” with respect to environmental compliance.

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Other Possible Sectors

The potential for transferring the C/U Initiative model hinges on the degree to which other sectors have characteristics similar to those identified above. In our interviews with regulators, we discussed candidate sectors and examined how their characteristics may or may not be amenable to a self-audit approach. Exhibit 5-1 summarizes our findings.

As shown, the sectors tentatively considered include hospitals, independent research labs, newspapers, metal finishers, and chemical manufacturers. Of these, hospitals and research labs appear to have profiles similar to C/Us. Specific observations include the following:

- Like C/Us, hospitals are geographically scattered, technically sophisticated, and cognizant of their public image, all features that contribute to the success of a self-audit approach. The need for a self-audit program may be partly undermined, however, by the fact that hospitals face relatively standardized environmental issues (e.g., disposal of medical waste) and may therefore be less challenging from an inspection and enforcement standpoint.
- Independent research labs are like C/Us in that they are environmentally diverse and highly sophisticated. However, because they are private business entities without a high public profile, there may be less concern for public image and more limited sharing of information among labs.
- While tentatively considered for a self-audit approach, newspapers, metal finishers, auto repair facilities, and dry cleaners probably represent poor candidates. In particular, these sectors likely lack the technical expertise to perform self audits. Likewise, these facilities (with the possible exception of newspapers) operate autonomously; their financial success does not depend on their environmental reputation and there is little peer pressure or exchange of information among companies or facilities. Finally, these facilities operate in competitive private markets and therefore may be extremely cost-conscious, reducing their incentive to undertake self audits that may uncover costly environmental liabilities.

It is important to note that our conclusions on how different sectors might respond to a self-audit approach are speculative and potentially deserving of more detailed research. For instance, there may be ways to structure the incentive system to facilitate a system of self auditing for any given sector. In the case of metal finishers, for example, some of the regulators we interviewed noted that metal finishers typically have large corporate clients. EPA may be able to achieve leverage by working through these buyers of metal finishing services, relying on them to furnish incentives or special consideration to metal finishers with approved audits.

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Exhibit 5-1

CHARACTERISTICS OF OTHER REGULATED SECTORS CONSIDERED FOR SELF-AUDIT APPROACH

	Sector Structure			Degree of Technical Sophistication	Degree of Image Sensitivity	Degree of Peer Pressure	Quality of Communication Flow
	Many Facilities?	Geographically Scattered?	Diverse?				
Colleges/Universities	Yes	Yes	Yes	High	High	High	High
Hospitals	Yes	Yes	No	High	High	Uncertain	High
Research Labs	Yes	Uncertain	Yes	High	Medium	Uncertain	Low
Newspapers	Yes	Yes	No	Low	Medium	Low	Low
Metal Finishers	Yes	Yes	No	Low	Low	Low	Low
Auto Repair	Yes	Yes	No	Low	Low	Low	Low
Dry Cleaners	Yes	Yes	No	Low	Low	Low	Low
Chemical Manufacturing	Yes	Uncertain	Yes	High	Medium	Uncertain	Uncertain

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TRANSFERABILITY TO OTHER EPA REGIONS

In some respects, the issue of transferability of the C/U Initiative approach to other EPA regions is moot. EPA Regions 2, 3, 4, 7 and 9 have already initiated some form of self-audit program with colleges and universities. The question of whether the approach implemented by EPA New England will transfer effectively to these and other EPA regions is partly dependent upon the structure of the C/U sector in different parts of the country. The New England C/U sector may have an advantage in that it is geographically concentrated (relative to the western U.S., for example) and has numerous small and medium-sized schools. In particular, the concentration of smaller, private schools in New England is unique. Much of the success of the C/U initiative is attributable to the interactive community of schools in New England. This interaction had several results, some of which were noted earlier:

- School administrators exchanged information about the implications of major enforcement actions;
- Health and safety staff exchanged information about the potential value of the self-audit approach and ways that the self audits could be completed; and
- The critical mass of participating schools helped foster a type of peer pressure that encouraged compliance.

Other EPA regions may not offer the same advantages, since the midwestern and western U.S. are dominated by large state schools systems. Hence, the critical mass of participating schools may be difficult to realize.

It is noteworthy, however, that large state school systems may offer certain advantages absent in the New England system. Many state school systems have centralized environmental management staff that develop plans and policies for the various campuses in the system. It may be easier to spread the word about a self-audit program by working with these core managers. Likewise, there may be economies of scale associated with sharing consultants across the schools or developing “boilerplate” components to audit reports that apply at multiple campuses. These economies of scale may extend to the EMS stage of the program. Some environmental management officials interviewed in our survey noted that they are beginning or considering an EMS that would govern multiple campuses in the state system.

The efficiencies associated with implementing a self-audit program through a large university system are illustrated in an on-going effort at EPA Region 2. Region 2 has recently

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initiated campus-wide audit agreements with the State University of New York and Rutgers, the state university system of New Jersey. These audit agreements differ from standard Audit Policy disclosures in that they apply to multiple campuses within the university system and provide an extended schedule for disclosing violations discovered in self audits. This arrangement allows the university the flexibility of an extended violations disclosure schedule and ensures a single EPA contact for the entire university system.

Finally, the transferability and success of the C/U Initiative approach in other regions will depend on how the program is administered. Two factors appear most important:

- EPA New England interviewees indicate that one EPA region has encountered limited participation in their C/U program because they moved directly to the self-audit stage without first offering workshops and other technical support. The technical support stage has proven essential for highlighting the advantages of self auditing and assuring participants of the technical feasibility of self auditing.
- Another key administrative factor concerns involvement of state regulators. Interviews suggested that state regulators enjoyed being consulted early in the process and appreciated the opportunity to contribute to initial planning. Part of the New England program's success was that it allowed state regulators to be involved to the degree of their choosing; i.e., some states were co-managers while others left administration of the program to EPA New England. Recognizing the varying degree of interest of different states and offering flexibility in how states are involved may be important when implementing similar C/U projects in other regions.

Overall, it is uncertain how readily the self-audit approach can be transferred to the C/U sector in other EPA regions. Much depends on the characteristics of the sector in the region and the resources that the EPA regional office is able to devote to the effort. We recommend that EPA organize a meeting or conference call to develop a more thorough comparison of the ongoing C/U self-audit programs in terms of technical support efforts, participation rates, audit status, and apparent level of success. From this more systematic comparison, it may be possible to identify key determinants of success that can guide the effort of regional offices that are considering a self-audit program or are in the early stages of implementation.

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Based on the data gathered for this evaluation, the C/U Initiative has succeeded in satisfying many of its key objectives. In particular, our research suggests that the Audit Initiative was well executed and has resulted in a variety of environmental management changes at C/Us that further the long-term goal of reducing the environmental footprint of colleges and universities. Below, we review the major successes of the program and potential areas for improvement. We then discuss lessons from the evaluation effort and their implications for future studies.

SUCCESSSES

The New England C/U Sector presents a regulatory challenge in that it comprises numerous facilities with diverse environmental management problems. As such, it is difficult to achieve compliance through traditional means such as EPA or state inspections and enforcement penalties. The C/U Initiative is designed to leverage enforcement resources, achieving the greatest degree of compliance for the least cost, i.e., compliance improvements come at little enforcement expense to regulatory agencies. This evaluation suggests that EPA has satisfied this administrative objective along with the general performance objective of reducing C/Us' environmental footprint in the long term. Specific observations supporting this conclusion include the following:

- O ***Program Incentives Encouraged Participation:*** Roughly half of all New England C/Us took part in the Audit Initiative. While the threat of enforcement actions encouraged many C/Us to participate, nearly all C/Us were motivated by the incentives offered under the Audit Initiative, particularly the desire to achieve a lower inspection priority.
- O ***Participants Addressed Violations Identified in Self Audits:*** About three-quarters of the Audit Initiative participants implemented short-term corrective actions to address problems found in their self audits. Common actions included waste labeling, spill prevention, and waste removals.

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- ***Participants Are Implementing Long-Term Environmental Management Changes:*** Rather than simply implementing “band-aid” corrections to issues uncovered in audits, nearly all of the Audit Initiative participants are implementing long-term environmental management improvements. Common changes include improved recordkeeping and information management; labeling programs; and enhanced training requirements.
- ***Participants Intend to Perform Audits in the Future:*** As further evidence of the potential for the Audit Initiative to yield future dividends, over three-quarters of the schools surveyed intend to perform additional self audits in the future. This finding demonstrates that, although participants found the self-audit process demanding, it was valuable and worth repeating.
- ***Participants Find Outreach Tools Useful:*** Survey respondents voiced satisfaction with the technical support efforts that EPA has taken as part of the overall C/U Initiative. Respondents cited the workshops, the common violations list, the regulatory interpretations, and the summary of the SPCC regulations as being especially useful in completing self audits.
- ***Many Schools Are Implementing or Considering EMSs:*** Nearly half of the survey respondents are implementing, planning, or considering an environmental management system. These schools cite the self-audit process and EPA’s overall educational efforts as influencing their decision to explore EMS. This finding suggests that EPA efforts to increase awareness of EMS and encourage adoption of EMS are succeeding. However, most schools are in an early stage with their EMS and were not yet able to identify specific benefits yielded by the approach.

Two factors appear to be most responsible for the success of the C/U Initiative. First, the C/U sector has characteristics that are highly conducive to a self-auditing approach. Key features of the sector include the technical sophistication of decisionmakers (e.g., EHS staff); sensitivity to public image; peer pressure between schools to maintain clean environmental records; and a mutually supportive exchange of technical information between schools. Other sectors with similar features – e.g., hospitals and research labs – may hold promise for future self-auditing initiatives.

Second, the C/U Initiative has been well managed and administered. State regulators and other stakeholders complimented EPA’s management of the program, highlighting EPA’s willingness to coordinate with the states, the open information exchange between EPA and the C/Us, and the quality of EPA outreach efforts such as workshops and guidance materials. By providing

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C/Us with a point of contact at the Agency, the program has improved communication and coordination between EPA and the C/Us. This positive rapport represents a noteworthy contrast to the adversarial relationship that often prevails in regulatory programs and has contributed to the overall success of the C/U Initiative. EPA may wish to consider ways in which the Agency can maintain this relationship through a continued presence in the C/U sector.

AREAS FOR IMPROVEMENT

The survey responses and interviews with regulators and non-participants point to several areas for improvement. If EPA considers future self-audit programs, either with the C/U sector or other regulated sectors, the following recommendations may warrant consideration:

- **Modify Outreach Tools:** Some interviewees called for a greater number of workshops and for workshops to be held in more convenient locations for remote schools. Others noted that the EPA New England website could be modified to make C/U Initiative tools easier to find. In addition, some survey respondents suggested that EPA could establish a phone or Internet-based help system that could be accessed anonymously.
- **Allow a Longer “Grace” Period:** Some interviewees suggested that the period following the self audit, during which the school is considered a low inspection priority, should be lengthened. The feeling was that this greater benefit would be commensurate with the investment required by the self audit.
- **Lengthen Corrective Action Window:** Many of the schools completing short-term corrective actions felt that the 60-day window was inadequate and noted that extensions were frequently needed. If legally feasible, EPA may wish to consider offering a longer window of time for correcting violations.
- **Improve Follow-Up and Recognition:** Some interviewees and regulators recognized a need for spot checks that would verify audit claims and ensure that corrective actions are implemented. In addition, EPA New England also noted that the audit program could be enhanced with an award program that recognizes the accomplishments of selected schools.

IMPLICATIONS FOR PERFORMANCE TRACKING AND FUTURE EVALUATION EFFORTS

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The research completed for this study highlights several considerations relevant to future evaluations, as well as ways that future self-audit initiatives can be improved to facilitate performance tracking. Specific observations include the following:

- **Program Goals:** A more formalized statement of program goals would have assisted in evaluating the C/U Initiative. As with any program, it is desirable to take time in the early implementation stages to establish goals that imply clear performance measures, success thresholds, and time frames. For instance, had EPA New England established a goal regarding the desired percent of New England schools participating in the C/U Initiative, it would be easier to frame the success of the program vis a vis participation rates.
- **Baseline Data:** Ideally, a program evaluation should proceed from baseline data and gauge program results relative to that baseline. For instance, if EPA New England was able to collect data on the number of schools performing or considering self audits prior to the C/U Initiative, it would improve the certainty of conclusions regarding the causal effects of the program. It is noteworthy that the generic information collection request (ICR) under which EPA gathers data from the regulated community does not extend to collection of baseline data, making it harder to compile baseline information.
- **Regional Staff Involvement in Evaluation:** EPA New England staff were instrumental in helping plan and execute this evaluation. In particular, involvement of program staff in the development of the survey questionnaire helped ensure that the questions posed were relevant and addressed key concerns. EPA New England also helped encourage sampled respondents to take part in the survey, drawing on their positive relationship with EHS managers and legal counsel to certain schools.
- **Survey Implementation Time:** Implementation of the phone survey took roughly 11 weeks, several weeks longer than originally intended. Some respondents needed time to gather information while others were simply busy and regarded the survey as a lower priority. Future survey efforts should take into account that, even with a relatively sophisticated and motivated set of interviewees, persistent calling and extended time frames may be needed to enlist the cooperation of respondents.

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APPENDIX:
SURVEY QUESTIONNAIRE

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**COLLEGES AND UNIVERSITIES
ENVIRONMENTAL SELF-AUDIT INITIATIVE EVALUATION AND SURVEY**

This survey will help us measure the effectiveness of EPA’s efforts to increase overall environmental performance and awareness at New England Colleges and Universities (C/U). A key element of this approach, the Self-Audit program, is designed to encourage C/Us to examine their environmental performance and to establish a disciplined process for reviewing their compliance status. The information gathered from these efforts enables C/U employees to identify problems and establish environmental management measures to address these issues.

To help EPA-New England update the overall C/U Initiative and improve the Self-Audit Initiative in particular, we would like to ask you several questions about your participation in the C/U Initiative. We would like to assure you that any information you provide will be reported to EPA only in aggregate, without attribution, and will not be used to assess compliance or assign penalties.

A. SEMINARS AND DOCUMENTATION

In the first phase of this program, EPA focused on education and outreach. The goal was to make environmental staff at C/Us aware of the environmental regulatory and other requirements governing their institutions and thus facilitate the self-audit process. The Agency provided a number of documents and educational materials, designed to provide additional support as you conducted self-audits. The following questions gauge how useful these tools were to you.

1. Did you participate in any of the educational seminars or workshops?

Yes

No

2. Please rate the utility of the following tools with respect to the support they provided to you in your self-audit.

Tools	Very Useful	Useful	Not Useful	N/A
Workshops				
Website				
EPA New England Inspectors’ MultiMedia Checklist				
Federal and State Inspection Checklists				
Sample Inspection Reports				
SPCC Regulations				
Auditing Tools				

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Common EPA violations				
Regulatory Interpretations				

3. These tools were designed specifically with the needs of the C/U sector in mind. Were they specific enough to guide you through your compliance audit?

- Yes No Don't Know

4. How could these materials be improved in general? Specifically?

5. What additional information, support, or help would have streamlined or simplified the self-audit process?

B. INCENTIVE STRUCTURE

1. Apart from the incentives offered under the C/U Initiative, did the possibility of enforcement action play a role in your decision to participate?

- Yes No

2. EPA developed an incentive program to encourage C/Us to conduct an environmental audit. C/Us became eligible for penalty reductions of up to 100% if they conducted the self-audit and agreed to correct the issues identified. Further, participants were given “low inspection priority” in exchange for a commitment to complete a self-audit. Did these incentives play a role in your decision to participate in this program?

- Yes No

3. What factor most influenced your decision to participate in the audit initiative?

- Opportunity for penalty reduction
- Low inspection priority
- Enforcement efforts
- Educational seminars and workshops
- Available tools designed for C/U use
- Thought the initiative was a good idea
- Other _____

4. Were you satisfied with the incentives you received for participating in this program?

- Yes No

5. Do you intend to conduct another audit at your facility?

- Yes No

If not, what change could be made that would lead you to conduct another audit?

- Provision of additional incentives by EPA
- Additional environmental educational opportunities offered by EPA
- Additional time to comply
- Additional EPA staff support
- Support from your own institution

Can you suggest other incentives that would encourage you to continue the self-audit process? (For example: Recognition program or enforcement amnesty.)

C. STRUCTURE AND EFFICACY OF AUDIT INITIATIVE

To improve this audit program, as well as to evaluate its applicability in other regions of the country, we want to know how this initiative affected your institution's environmental performance and how we might improve it.

1. What has been the most demanding aspect of your participation in the audit initiative? (For example: audit logistics, cost of compliance, compliance logistics, obtaining administrative support, overall time commitment, etc.)

2. As a participant in the audit initiative, has your institution taken any short-term actions to correct any identified violation (s)?

- Yes No N/A (No Violations)

If yes, what measures have you taken? (Interviewer: Emphasize that these should be measures not planned prior to the self-audit.)

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If not, why not?

3. Did you have adequate time to correct your violations? (Interviewer: Too much time? Too little time?)

4. As a result of your audit findings, have you implemented any long-term managerial, administrative, procedural, or behavioral changes (e.g., labeling change, manifesting change, record keeping change, monitoring/sampling change, testing change, or change in operations) to ensure ongoing compliance?

Yes

No

If yes, describe the nature of the behavioral change.

Did you perceive any tangible, quantitative measures of the effect of this change?

5. Did these changes address specific environmental management goals?

Yes

No

If yes, what were the improvements in your environmental practices? (Interviewer: Facilities management; hazardous waste management; non-hazardous waste management; toxics management and community right-to-know requirements; control of air emissions; management of wastewater.)

6. From which groups did you receive support when conducting the self-audit and any associated behavioral/procedural changes? CHECK ALL THAT APPLY.

College/university President

Board of Trustees

Staff

Colleagues/Peers

Faculty

Students

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- Other schools
- Professional organizations
- Community groups
- EPA New England
- State Environmental Offices
- Other: (please specify)_____

Were these interactions useful?

Which group was most helpful?

D. EMS INITIATIVE

The first part of Phase II emphasized the self-audit. To strengthen institutional compliance, the second part of Phase II is designed to encourage you to adopt an Environmental Management System (EMS).

1. Is your C/U considering or in the process of implementing an EMS? If no, skip to question 6.

- Yes No

2. If yes, did the C/U Initiative’s educational efforts, audit process, or EMS pilot program play a role in this decision?

Were there other factors that influenced your decision?

3. If you have an EMS, has it been the basis for any extra-legal or beyond compliance operating changes? (Interviewer: Offer examples such as energy saving practices, changes in purchasing practices, etc.)

4. Have you realized any specific benefits?

Potential Benefit	Realized Benefit? (Y/N)	Impact (\$, KWH, lbs., percent change, etc.)
Energy savings		
Increased recycling		
Savings on materials purchased		

Increased compliance levels with decreased resources		
Increased compliance levels without decreased resources		
Other (please specify): _____		

5. Are there any factors influencing or impeding successful implementation of your EMS? If so, what are these factors?

6. If you do not have or intend to have an EMS, what is the major reason behind this decision?

- Cost considerations
- Lack of C/U support
- Insufficient technical resources (knowledge, staff, etc.)
- Hassle Factor
- Other _____

E. GENERAL INFORMATION

1. Which category best describes your position?

- Environmental Professional
- Facility Maintenance Staff
- Faculty/Department Head
- Health and Safety Professional
- Other: (please specify) _____

2. How many students attend your institution (undergraduate students only)?

- Less than 2,500
- Between 2,500-10,000
- More than 10,000

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