Improving EPA's Performance with Program Evaluation

Project in Excellence and Leadership: New England Universities' Laboratories Mid-Term Evaluation: Piloting Superior Environmental Performance in Labs

Series No. 8

By continuously evaluating its programs, EPA is able to capitalize on lessons learned and incorporate that experience into other programs. This enables the Agency to streamline and modernize its operations while promoting continuous improvement and supporting innovation. This series of short sheets on program evaluation is intended to share both the results and benefits of evaluations conducted across the Agency, and share lessons learned about evaluation methodologies in this evolving discipline. For more information contact EPA's Evaluation Support Division at www.epa.gov/evaluate.

At a Glance

Evaluation Purpose

To garner lessons learned and highlight opportunities to improve the overall environmental performance of the universities for the rest of the project.

Evaluation Type

Mid-term Outcome Evaluation

Publication Date

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Partners

EPA Office of Policy, Economics and Innovation, EPA Region 1, Boston College, University of Massachusetts Boston, University of Vermont, Vermont Department of Environmental Conservation, Massachusetts Department of Environmental Protection, and Nexus Environmental Partners

Contact

Suganthi Simon, OPEI (202) 566-7416

Background: Why was an evaluation performed?

Over the last fifteen years, the regulated community has recognized the difficulties in tailoring regulations to the unique environmental and structural aspects of academic and research laboratories. The Occupational Safety and Health Administration's (OSHA) laboratory standard is written specifically for laboratories, while the Resource Conservation and Recovery Act (RCRA) Subtitle C makes no distinction among its many different regulated entities. This dual and dissimilar regulatory scheme currently governing labs has proven to be unwieldy.

In 1999, a consortium of university laboratories in New England joined the U.S. Environmental Protection Agency's Project XL (eXcellence and Leadership) to test an innovative program to reduce regulatory inefficiencies and achieve better environmental performance than what is required under the current regulatory structure. Three universities—Boston College, University of Massachusetts Boston (UMB), and University of Vermont (UVM)—are testing the integration of RCRA hazardous waste regulations with OSHA's performance-based Chemical Hygiene

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Plan. This harmonization system requires the use of performance-based criteria to effectively manage laboratory wastes with an Environmental Management Plan (EMP). The EMP is specifically tailored to the research needs and processes of each university.

The new system focused on the following priority areas: (1) increasing faculty, laboratory staff, and student training to improve individual behavior in the laboratory and overall environmental awareness of staff and students; (2) generating pollution prevention ideas; (3) reducing laboratory hazardous waste generation; and (4) increasing chemical redistribution and reuse. By December 2000, all three schools had implemented their EMPs and had actively begun to track their commitments and progress in meeting the stated goals and objectives of the pilot project. In June 2001, the three schools issued the first annual progress report for the project, which yielded mixed results. The project partners agreed to conduct a mid-term evaluation to obtain a clear picture of why the schools were seeing certain EMP elements take hold and why others seemed to be having minimal results. The mid-term evaluation discusses the results of the universities' efforts to actively encourage chemical reuse and recycling, enhance conformance with internal policies, increase efficiency, and promote environmental stewardship within laboratories.

Basic Evaluation Approach: How did they do it?

The evaluation was conducted by a team comprising staff from EPA's Office of Policy, Economics and Innovation (OPEI), the universities, (Nexus Environmental Partners), the Vermont Department of Environmental Conservation (DEC), and the Massachusetts Department of Environmental Protection. The evaluation involved the seven steps outlined below.

Step I: Develop an evaluation plan and evaluation outline.

Step II: Use a logic model to lay out a framework for understanding the project. The logic model graphically represents the relationship among program inputs, outputs, and intended outcomes.

Step III: Develop a standard set of discussion questions for use in conducting group discussions with the schools.

Step IV: Collect qualitative data by conducting group discussions with university administrators, students, and faculty at each of the three universities.

Step V: Collect and analyze compliance data from project universities soon after EMP implementation and gather compliance data on non-project universities as baseline comparison data to compare the first-year audit results at the participating universities. Conduct regular team conference calls on the EMP development and implementation phase with key environmental, health, and safety staff from the three universities, (Nexus Environmental Partners), and with Vermont DEC.

Step VI: Analyze group discussion data and information and prepare report findings and recommendations.

Step VII: Share report findings and recommendations with the evaluation team and chart a communications plan for the evaluation findings with senior managers and other interested parties.

Approach for this Evaluation

Step I
Develop Evaluation Plan

Step II
Develop Logic Model

Step III
Develop Interview/Discussion Questions

Step IV
Conduct Interviews

Step V
Collect and Analyze Data

Step VI
Develop Findings and Recommendations

Step VII
Share Findings and Recommendations

Evaluation Results: What was learned?

The mid-term assessment of this project indicated that the project showed great success in some important areas: developing EMPs, training staff, increasing awareness, shifting attitudes and behaviors, improving the range of activities that determine compliance and emergency preparedness, and demonstrating that the environmental management system approach to managing laboratory waste is slowly gaining hold and making progress. At the same time, as fully described in the report, the project has not shown the expected successes in other areas—such as chemical reuse and redistribution or pollution prevention—for a variety of academic and cultural reasons. The lessons learned highlight areas of great progress and areas that require further thought, discussion, brainstorming, and action. In the era of heightened awareness of domestic security issues, colleges and universities can benefit from a more holistic management scheme, such as the New England Universities' Labs project, that stresses chemical awareness, proper chemical handling and disposal, and better laboratory housekeeping in general.

Evaluation Outcomes: What happened as a result?

The final project agreement (FPA) for the New England Universities' Laboratories Project XL originally expired in 2003. EPA staff extended the FPA and will adjust aspects of the pilot project based on the findings and recommendations included in the evaluation. The evaluation will be used to identify the strengths and weaknesses of the New England Universities' Labs program, offering suggestions for continuous improvement and creating a system of learning within EPA, the states, and the universities on laboratory innovation. The evaluation will also be used to inform a national dialogue on the potential for regulatory reform for academic laboratories. Specifically, EPA's Office of Solid Waste and Emergency Response is considering the pilot's experience as it considers the development of a national rule that may regulate hazardous wastes in college and university laboratories.

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