



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
EPA NEW ENGLAND REGION I

Memorandum

**Date:** August 8, 2003

**Subj:** EPA New England Recommendations Regarding the Regulation of Waste in Academic Laboratories (RCRA Docket RCRA-2003-0012)

**From:** Ira Leighton, Deputy Regional Administrator

**To:** Bob Springer, Director, Office of Solid Waste

---

EPA New England is submitting these comments in response to OSW's solicitation in June for comments on the topic of Waste in Research/Academic Laboratories (RCRA Docket ID No. RCRA-2003-0012). For nearly a year, EPA New England has been an active participant in an OSW-led workgroup that has gathered data and analyzed many of the issues associated with the regulation of waste in research/academic labs. My staff has welcomed the opportunity to work with members of your staff on these issues and we appreciate the time and consideration that they have given to the many issues we have raised.

**Background**

As you may be aware, for the last few years EPA New England has been heavily involved in an integrated, multi-faceted program focused on colleges and universities. This effort has included use of virtually all the tools at our disposal: inspections and enforcement<sup>1</sup>, SEPs, the self-audit policy<sup>2</sup>, outreach to the regulated community through meetings and workshops as well as the development of website guidance and EMS and BMP guidelines<sup>3</sup>, and implementation of an

---

<sup>1</sup>By July 2003, EPA Region I had performed multi-media inspections at twenty colleges and universities in New England. Our ongoing activities have resulted in enforcement actions settled for penalties, injunctive relief, and SEPs. The value of these settlements range from \$160,000 to more than \$850,000.

<sup>2</sup> As of July 24, 2003, 176 C/U facilities stated their intent to participate in this initiative, 171 self-disclosures had been received and reviewed, and 134 self-disclosures have received final determination.

<sup>3</sup> Since 1999, Region I has written facts sheets and other educational materials, sponsored or co-sponsored 16 workshops, participated in 54 speaking engagements for C/Us, designed a regional website that has recorded 149,966 requests within 3 years, developed the BMP Catalog website, develop the EMS Guide for C/Us, participated in EMS Pilot Program for C/Us through the UMass Lowell EMS Service Program.

innovative pilot program New England University Laboratories XL Project<sup>4</sup> (Labs XL). As a result of this extensive involvement with the college and university (C/U) community, we have formed some conclusions regarding the development of a new approach to regulation and guidance for this sector. We are pleased to share some of those ideas with you now.

### **Labs XL Project**

The Labs XL project developed as a response to the frequently heard complaint from the C/U community that the current regulatory requirements pertaining to laboratories under RCRA were originally designed for industrial facilities, resulting in a poor fit for C/U laboratories. Where OSHA has implemented a separate worker safety standard written specifically for laboratories, RCRA Subtitle C requirements make no distinction among its many different regulated entities. Discussions to address these issues were begun in 1996 with the C/U community and culminated in a new pilot regulation that went into effect in 1999 as part of the Labs XL project.

The Labs XL project represents a coordinated effort of three New England universities and the Campus Consortium for Environmental Excellence (C2E2), a non-profit entity that has served as a coordinating agent. We also worked closely with local, regional and national stakeholders, the States of Vermont and Massachusetts along with EPA HQ to test an innovative combination of environmental management system concepts and limited regulatory flexibility for the three pilot universities.

The pilot promotes environmental management system concepts by requiring that each school implement an Environmental Management Plan (EMP) that was specifically tailored to the research needs and processes of each university. The EMP focuses on issues primarily related to the management of laboratory waste. A principle goal of the EMP was to harmonize RCRA and OSHA requirements by using performance-based criteria to effectively manage wastes. The EMPs focus on certain priority areas with the expectation that these factors would combine to reduce laboratory hazardous waste generation and increase chemical redistribution and reuse. These priority areas include: 1) increasing faculty, laboratory staff and student training in order to improve individual behavior in the laboratory and overall environmental awareness of staff and students; 2) creating pollution prevention opportunities; 3) implementing an efficient waste management and collection system; and 4) ongoing laboratory auditing.

---

<sup>4</sup>Many sources are available for further information on the XL Project. The Final Project Agreement was signed by the three Project Signatories: U Mass- Boston, Boston College, University of Vermont, MA DEP, VT DNR, and EPA Region I. The universities also provide annual progress reports. Finally, a mid-term evaluation entitled: "Project in Excellence and Leadership: New England Universities' Laboratories Mid-Term Evaluation: Piloting Superior Environmental Performance in Labs." was completed in October, 2002. All these documents are available at: [<http://www.epa.gov/projectxl/nelabs/index.htm>]

The regulatory flexibility created as part of the pilot was limited to two areas considered valuable by the pilot schools. First, the site-specific rule that was written for the pilot<sup>5</sup> allows the formal hazardous waste determination to take place at a centralized facility within each university, rather than in the laboratory where the waste is generated. The hypothesis being tested under this aspect of the pilot is that useable product could be removed from the waste stream. RCRA forces waste to be characterized as hazardous in the laboratory - researchers and graduate students often label even useable product as waste, and this practice serves as a barrier to the reuse, recycling and redistribution of laboratory waste throughout the institution.

The second area of flexibility provided in the site-specific rule extends the requirement to remove hazardous waste within 3 days (of reaching the 55 gallon (or 1 quart for acute) limit on hazardous waste, with many states being more stringent on quantity) to 30 days. The current regulatory system results in reactive and episodic pick-ups which, in settings of potentially hundreds of laboratories, becomes time-consuming and inefficient for laboratory and EHS personnel and can result in episodic noncompliance. The extension from three days accumulation to 30 days allows EHS professionals to collect and remove laboratory waste during planned, systematic and scheduled intervals, and has smoothed out operations significantly so that EHS personnel have more time to devote to planning and training.

## **Recommendations**

---

<sup>5</sup> See 64 Fed.Reg. 52380 (September 28, 1999)

The following recommendations for regulatory and guidance change for the management of waste in research laboratories are based upon Region I's experiences. It is significant that the recommendations call for relatively minimal changes to the actual RCRA structure, but when implemented via a "Laboratory Management Plan", create useful flexibility for the universities. These recommendations allow for the voluntary implementation by academic laboratories of a "Laboratory Management Plan"<sup>6</sup>

(LMP, or Laboratory Chemical Byproduct Management Plan (LCBMP)) that would operate similarly to the current RCRA contingency plan (40 CFR Part 265 Subpart D)). Similarly to the contingency plan, the LMP would contain a general duty clause as well as specific content requirements and a facility would be subject to inspection both for meeting the content requirements as well as for its implementation of the plan. In those states that adopted the LMP rule, academic institutions that implemented an LMP would be allowed to pursue flexibility in two areas: the location of formal hazardous waste determinations and an increase (from 3-30 days) in satellite accumulation times.

## **1. Scope**

Region I has chosen to limit its comments to college and university laboratories only. We are aware of persuasive arguments to broaden the field to include research labs in non-academic settings. However, we believe that the issues faced by non-academic laboratories are sufficiently different from those in academic environments that a determination on whether our recommendations would apply to such non-academic laboratories requires additional research and analysis not currently available in the region.

## **2. Elements of Regulatory Change:**

### **A. Voluntary Regulatory Scheme**

Establish an "opt-in alternative compliance scheme" (therefore not mandatory for those who choose to continue to comply with RCRA as it currently exists). Any such regulations would have to be adopted by states for it to be available to institutions within their jurisdiction upon authorization.

### **B. Laboratory Management Plan**

Participating colleges and universities will implement a Laboratory Management Plan (LMP), the requirements of which would be set forth in a new regulation. The additional requirements will not duplicate existing

---

<sup>6</sup>A LMP would manage laboratory waste or laboratory chemical byproducts, which could be defined similarly to the NEU Labs XL project definition at 40 CFR Sec. 262.102.

In part, the definition of Laboratory Waste means a hazardous chemical that results from laboratory scale activities and includes excess or unused hazardous chemicals, hazardous chemicals determined to be RCRA waste and hazardous chemicals that will be determined not to be RCRA waste (e.g., will be reusable).

RCRA requirements, but would set up a system under which institutions that adopt the LMP must meet certain performance standards.

Key elements of a laboratory management plan will ensure that adequate measures will be taken to protect human health and the environment. At a minimum, requirements would include: an effective training program for all laboratory workers; an outline of an efficient waste management and collection system that would include how wastes will be identified, audited, collected and managed; an ongoing laboratory audit program; and a laboratory waste minimization and pollution prevention program.

We envision the institutions that desire inclusion under the LMP model would send a letter of intent (LOI) to their state regulatory agency and a copy to the EPA region. That way, there will be a clear list of which facilities are covered under which regulatory scheme. The LOI would also indicate the start date after which they would have the LMP in place and be fully operational. Use of an LOI will facilitate measurement of the effectiveness of the alternate system, as well as provide important information for state or EPA inspectors regarding which regulatory scheme an institution chooses to be regulated under.

The LMP is enforceable in the same way that a RCRA contingency plan is enforceable: by inspection of the plan for inclusion of all required elements, by inspection of the facilities under the plan for a demonstration that the plan is being implemented as written, and finally, by compliance with the general duty clause (performance).

### C. Regulatory Flexibility

For those institutions implementing an Laboratory Management Plan, two elements of regulatory flexibility would be available:

1. Formal hazardous waste determination can be made in central accumulation area (See XL Rule for example language: 64 Fed. Reg. 52381, 52395 (September 28, 1999))
2. Satellite accumulation timeframe is extended from 3 to 30 days.

### **3. Treatment**

The issue of treatment<sup>7</sup> should be addressed in guidance issued by OSW. Ideally, this guidance will encourage running experiments to their least toxic endpoint as recommended in many laboratory guidances, such as Prudent Practices in the

---

<sup>7</sup>40 CFR 260.10 definition: "Treatment" means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

Laboratory [*National Research Council, National Academy Press, 1995*]. If the least toxic endpoint nevertheless produces a hazardous waste, the guidance should clarify that laboratory scale<sup>8</sup> treatment is not precluded by regulations but is predicated on compliance with requirements that are based on safety considerations. Treatment can only be performed by personnel trained adequately to perform the specific treatment, under conditions defined by facilities' Waste Analysis Plans under current regulations, but could be defined in the proposed LMP. Treatment without a permit can be performed by trained personnel in tanks and containers as long as the container management also complies with the 40 CFR 265 Subparts I and J, container and tank regulations.

#### **4. Federal/State Rule Inconsistencies**

One of the most frequent concerns voiced by members of the C/U community is the inconsistency between state and federal regulations and between individual states. States can elect to implement more stringent requirements than those of federal regulations, and often do so. Suggesting that states adopt this regulation as a package could eliminate some of the inconsistencies that arise under the current program.

We applaud the energy with which OSW has approached this effort, and look forward to a continuation of the very positive working relationship developed between our staffs. If we can provide any additional clarification or assistance, please feel free to give me or the XL Project Manager, Gina Snyder (617-918-1837) a call.

cc: Stephen Perkins, Office Director, OES  
Marv Rosenstein, Chief, Chemicals Management Branch, OEP (RCRA SPA)  
Jay Benforado, Director, NCEI  
Steve Simoes, VTDEC  
Jim Miller, MADEP

bcc: Betsy Shaw, George Wyeth, Lisa Reiter, Suganthi Simon (OPEI), Kristina Meson, Kristin Fitzgerald (OSW);  
Tom D'Avanzo, Peggy Bagnoli, Josh Secunda, George Frantz, Gina Snyder, Anne Leiby, Ken Rota, Jeff Fowley, Gary Gosbee (EPA R1)

---

<sup>8</sup>40 CFR 262.102 definition: "Laboratory Scale" means work with substances in which containers used for reactions, transfers and other handling of substances are designed to be safely and easily manipulated by one person. ``Laboratory Scale'' excludes those workplaces whose function is to produce commercial quantities of chemicals.

