

US EPA ARCHIVE DOCUMENT

PROJECT XL
FINAL PROJECT AGREEMENT (FPA)

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I. INTRODUCTION

A. Project Signatories

The project signatories to this Final Project Agreement (FPA) are the U.S. Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MADEP), the Vermont Department of Environmental Conservation (VTDEC), Boston College (BC), University of Massachusetts - Amherst (UMass - Amherst), University of Massachusetts - Boston (UMass - Boston) and the University of Vermont (UVM) collectively referred to hereinafter as the Project Signatories. The term "XL Participants" refers to the academic institutions mentioned above.

B. Purpose of the XL Program

This FPA states the intention of the Project Signatories to carry out a pilot project as part of EPA's "Project XL" program which tests innovative approaches to environmental protection. Project XL is an EPA initiative to test the extent to which regulatory flexibility, and other innovative environmental approaches, can be implemented to achieve both superior environmental performance and reduced economic and administrative burdens. (See 60 FR 27282).

C. Purpose of this FPA

This FPA is a joint statement of the Project Signatories' plans and intentions with respect to the New England Laboratories XL Project ("Laboratory XL Project"). It states the plans of the various signatories and represents the firm commitment of each signatory to support the XL process, the site-specific rulemakings and variance(s) and the development and implementation of Environmental Management Plans necessary to fully carryout this XL project. The FPA is not, however, intended to create legal rights or obligations and is not a contract, a final agency action or a regulatory action such as a permit or rule. This FPA does not give anyone a right to sue the

Project Signatories for any alleged failure to implement its terms, either to compel implementation or to recover damages.

As described below in Section II.E., EPA will issue a site-specific rulemaking and MADEP and VTDEC will execute consent orders to implement the Laboratory XL Project at both the Federal and state levels. The Federal regulation and state consent orders will create legal rights and obligations. Any rules promulgated or issued to implement the Laboratory XL Project will be enforceable as provided herein and to the same extent as under applicable law.

The FPA does not waive, change or substitute the public participation requirements applicable to rules and permits.

This FPA and materials relating to this project are available on the Project XL Web Site at <http://esf.uvm.edu/labxl> and at EPA's Home Page at <http://199.223.29.233/Projectxl/xl.home.nsf/all/homepage>.

II. DESCRIPTION OF THE PROJECT

A. Operations and Activities of XL Participants

Each of the XL Participants operate research and teaching laboratories at their respective campuses. A summary of the organizations and their laboratory activities are summarized in Table 1 below.

Table 1.XL Participant Information

Institution	
Location	
Student Body	
Approx. # of Laboratories	
Boston College	
Chestnut Hill, MA	
14,000	
75	
University of Massachusetts - Boston	
Boston, MA	
13,000	
150	
University of Vermont	
Burlington, VT	
10,000	
400	
University of Massachusetts - Amherst*	
Amherst	
25,000	

UMASS-Amherst is piloting treatment in containers which is not associated directly with a particular laboratory

* It is important to note that UMass- Amherst will not be seeking Federal regulatory relief under this Laboratory XL Project, but will be a co-sponsor of this Project.

Boston College is classified as a Small Quantity Generator (SQG). The University of Massachusetts (Amherst), the University of Massachusetts (Boston) and the University of Vermont manage their hazardous waste as Large Quantity Generators (LQG). UMass-Boston is an LQG solely as a generator of acute wastes in excess of the 1 kg/mo. threshold. Additionally, UVM operates a Part B permitted facility for the storage of hazardous wastes.

B. Problem Description

It is the Participant's belief that the hazardous waste generating activities and best management practices in research and teaching laboratories are inherently different from those of the industrial operations that serve as the model for the current hazardous waste laws and regulations. First, the activities and the products generated by these laboratories are different. By definition, laboratories produce knowledge and information and do not produce commercial quantities of materials for sale, while manufacturing operations have the goal of efficiently producing material goods. As a result, laboratories generate relatively small quantities of many different hazardous wastes on a discontinuous basis, while industrial settings produce larger amounts of fewer wastes on a continuous basis. Second, research laboratories are expected by society to produce new knowledge based on techniques that are new or used in innovative ways. Teaching laboratories are expected to transmit knowledge in a way that produces broadly educated students. These missions typically rely on a social setting which is decentralized, diverse, has a large turnover of students/researchers and allows for significant amount of individual exploration and initiative. A one-size-fits all, externally imposed "command and control" regulatory approach is inconsistent with such a flexible educational setting. Third, performance-based standards applicable to hazardous materials in laboratories have been developed and successfully implemented by the National Institute of Health for biohazards, the Nuclear Regulatory Commission for nuclear hazards and OSHA for workplace hazards. For example, under OSHA's performance-based Laboratory Standard, management of hazardous materials in the laboratory is principally regulated by means of a written Chemical Hygiene Plan, as required under 29 CFR 1910.1450, developed by each organization in accordance with the criteria defined in the standard. Fourth, due to the complications of the current RCRA system as applied to laboratories, institutions do not develop and implement systemic programs to redistribute or recycle hazardous chemical waste otherwise destined for disposal. Academic institutions are currently reported to recycle less than three percent of the hazardous chemical waste otherwise destined for disposal.

For the reasons described above, the hazardous waste regulations prescribed by the Resource Conservation and Recovery Act (RCRA) are inefficient and cumbersome as applied to research and teaching laboratories. Moreover, the misfit between the prescriptive regulations and the

realities of laboratory activities and operations require interpretive decisions with respect to such issues as labeling (40 CFR §262.34(a)(3)); satellite accumulation (40 CFR §262.34(c)(1); "closed containers" (40 CFR §265.173(a) and "treatment in container" to name but a few. As a result, widely varying interpretations of RCRA regulations are applied to laboratories; practices accepted in one jurisdiction may result in significant fines in another. In fact, it is not an uncommon experience of laboratories to have an inspection, following a finding of no violations in previous years, which result in alleged violations even through the hazardous waste management practices are the same.

While no single "problem" is monumental, and no problem described above poses a risk to the environment, these myriad and omnipresent regulatory challenges and inefficiencies offer an opportunity to seek a solution that improves the regulatory system for managing hazardous wastes in laboratories, supports the re-use and recycling of laboratory wastes and better educates tomorrow's laboratory professionals and researchers.

C. Project Overview

The principle objective of this Laboratory XL Project is to pilot a flexible, performance-based standard for managing hazardous wastes in laboratories. We believe that pollution can be prevented, environmental awareness strengthened and regulatory compliance enhanced when laboratories are given the opportunity to implement, and be held accountable to, institution specific procedures for managing laboratory waste.

Boston College, the University of Massachusetts-Boston and the University of Vermont seek to achieve superior environmental performance by developing and implementing a system for managing laboratory wastes that conforms to an alternative regulatory model developed for this XL Project entitled the "Laboratory Environmental Management Standard" which is included as Appendix 1. The fundamental regulatory change sought by these XL Participants is to move the point of generation from the laboratory to the institution by adding new language to 40 CFR 262.10 which effectively excludes XL Participants' laboratories from the requirement to perform the RCRA Determination (40 CFR §262.11) so long as they comply with the new requirement to develop and implement a Laboratory Environmental Management Plan. The result of the change is that satellite accumulation requirements at 40 CFR §262.34(c) will no longer apply in the individual laboratories and the determination of whether wastes in laboratories are hazardous will be made at a central consolidation or accumulation area where decisions concerning recycle/reuse can best be made. The institution, acting at the institutional level, commits to fully complying with federal RCRA, state and local hazardous waste requirements.

The laboratories can be considered adequately regulated because such laboratories will conform with the Minimum Performance Criteria included as Appendix 2 in addition to OSHA regulations, fire codes and other legal requirements governing the handling and storage of hazardous materials. A flow chart illustrating the flow of hazardous materials through a laboratory and the management decision points is included as Appendix 3. The Laboratory Environmental Management Standard, together with the Minimum Performance Criteria, characterize the elements (e.g., policies and procedures) of the alternative regulatory model that must be

addressed by each institution in their Environmental Management Plan (EMP). The EMP, modeled on OSHA's Chemical Hygiene Plan, is a comprehensive plan that must include certain procedures, practices, programs and minimum performance criteria to ensure that laboratory wastes are appropriately managed and potential environmental impacts minimized. The EMP for each institution may be reviewed by the Project Signatories to determine that the EMPs address all requirements of the Environmental Management Standard. To be in conformance with the legal mechanism for this project, certain elements must be included in the institution's EMP and the minimum criteria met. It is expected that the Project Signatories will review the EMP to confirm the inclusion of all required elements. However, the manner in which the institutions address the elements of the EMP will be determined by each institution in accordance with their institutional procedures.

The University of Massachusetts (Amherst) will participate in the Laboratory XL Project by evaluating various treatment protocols potentially allowed as "treatment in container" exemptions. This exemption, first described in a Federal Register notice at 51 FR 10168, March 24, 1986, states "no permitting would be required if a generator chooses to treat their hazardous waste in the generator's accumulation tanks or containers in conformance with the requirements of §262.34 and Subparts J or I of Part 265. Nothing in §262.34 precludes a generator from treating waste when it is in an accumulation tank or container under that provision." The University of Massachusetts (Amherst) seeks to pilot certain treatment methods for laboratory wastes in containers and provide EPA with data and "lessons learned" to support the Agency's development of a guidance document with respect to the "treatment in container" exemption. Because they would be piloting and evaluating various "treatment in container" scenarios, the University of Massachusetts (Amherst) does not anticipate seeking federal regulatory relief under the XL Program but seeks clarification of the treatment in tanks and containers that is allowed under federal regulations. The UMass (Amherst) Treatment Approval Protocol is included as Appendix 4. However, treatment protocols and an internal approval process would be pre-approved by the MADEP under its emergency permit regulations (310 CMR §30.861) because Massachusetts has a statutory prohibition against treatment. The results from each treatment will be shared with MADEP and EPA to assess whether the approved treatment falls under the "treatment in container" exemption.

D. Project Implementation

The Environmental Management Plan (EMP). This XL Project will be implemented by Boston College, UMass (Boston) and UVM in a phased manner according to the following schedule.

Step 1. Conduct a baseline assessment of current environmental performance, based on representative data, within the first six (6) months of the effective date of the final project agreement. Baseline environmental performance will include: identification of hazardous chemicals of concern; measurement of hazardous material reuse and redistribution and laboratory hazardous waste generation data.

Step 2. Develop an EMP (e.g., written plan) within six (6) months of the effective date of the final project agreement. This plan will include developing EMP policies, procedures and practices consistent with the criteria described in the Laboratory Environmental Management

Standard (Appendix 1) including:

Section D. Organizational Responsibilities

Section E. Environmental Management Plan - General Elements

Section F. Information and Training

The EMPS will also describe the procedures and practices to conform with the Minimum Performance Criteria described in Appendix 2.

For the purposes of this XL Project, the scope of the project is illustrated in Table 2. The work products envisioned by both steps will be available for review by the Project Signatories and relevant stakeholders. Project Signatories may review each institution's EMP for the purpose of concurring that it meets the requirements of the Laboratory Environmental Management Standard.

Table 2. Scope of XL Project Implementation

XL PARTICIPANT

SCOPE OF XL PROJECT

Boston College

EMP applies to research and teaching laboratories that generate hazardous waste

University of Massachusetts - Boston

EMP applies to research and teaching laboratories that generate hazardous waste

University of Vermont

EMP applies to research and teaching laboratories that generate hazardous waste

Step 3. Implement the EMP by providing initial training and information on the EMP, and commencing implementation within nine (9) months of the effective date of the final rule and thereafter.

Step 4. Assess initial implementation and conformance with the EMP, collect data to evaluate environmental performance and take appropriate steps to address nonconformance(s) with the EMP (see Section V) within twelve (12) months of the effective date of the final rule and thereafter. (See Section III. G.)

Treatment in Containers.

Step 1. University of Massachusetts (Amherst) will conduct a baseline assessment of environmental performance, based on representative data, within the first six (6) months of the effective date of the final project agreement.. Baseline environmental performance will include: measurement of hazardous material reuse and redistribution and laboratory hazardous waste generation data.

Step 2. Upon receipt of MADEP approval for selected general categories of treatment methodologies, UMass-Amherst will conduct treatment methodologies in accordance with prescribed approval and treatment protocols.

Step 3. Collect data to evaluate environmental performance within twelve (12) months of the effective date of the final rule and thereafter. (See Section III. G.)

E. Project XL Regulatory Relief Being Requested

The Laboratory XL Participants request regulatory relief that would, in effect, legally establish the institution-and not the laboratory--as the site of generation. This, in effect, would move the "point of generation" out of the individual laboratory and to a point of institutional consolidation where a hazardous waste determination would be made. The XL Participants seek to modify 40 CFR §262.10 which defines the applicability and the scope pertaining to the requirement to make a waste determination at 40 CFR §262.11 ("Waste Determination"). The XL Participants propose to add a new paragraph (j) to §262.10 Purpose, scope and applicability which would read as follows:

"(j) This paragraph (j) applies only to the laboratory facilities at the University of Massachusetts in Boston, MA, the Boston College in Boston, MA and the University of Vermont in Burlington, VT . ("University Labs")

(1) Provided that the University Labs are in compliance with the requirements of paragraph (j)(2) of this section, the requirements referenced in part 262.11 for determining whether or not they have a hazardous waste are temporarily deferred with respect to the laboratories participating at the institutions outlined in paragraph (j) of this section. The requirements of part 262.11 continue to apply to the hazardous waste accumulation area(s) at the institutions.

(2) The University Labs must comply with the requirement to write, implement and comply with an Environmental Management Plan as outlined in the Environmental Management Standard (Appendix 1).

The further effect of this change would be as follows:

* exempt laboratories from the satellite accumulation requirements of 262.34(c)(1) and (2)

* exempt laboratories from the labeling requirements of 262.34(c)(1)(ii)

* exempt laboratories from the use and management of containers requirements of Subpart I (40 CFR §265.170 to 40 CFR §265.178).

While in the laboratory, laboratory wastes would be effectively managed and adequately regulated in accordance with each institution's EMP and be subject to applicable enforcement mechanisms (see Section V). Additionally, the full set of RCRA requirements would apply with full force and effect from the point at which the RCRA waste determination was made (i.e., central hazardous waste accumulation or storage area) and all hazardous waste management practices thereafter. (Note that the EMP requires procedures and time limits for the management and transfer of laboratory wastes to the consolidation point.)

For the second component of the proposal, treatment in tanks and containers, the Laboratory XL Participants request clarification that "no permitting would be required if a generator chooses to treat their hazardous waste in the generator's accumulation tanks or containers in conformance with the requirements of §262.34 and Subparts J or I of Part 265. Nothing in §262.34 precludes a generator from treating waste when it is in an accumulation tank or container under that provision." (51 FR 10168, March 24, 1986). Clarification of this section of the regulations is requested for particular treatment scenarios and protocols to be piloted by UMass(Amherst).

A listing of state standards from which the XL Participants are seeking exemptions is included as Appendix 5.

III. PROJECT XL ACCEPTANCE CRITERIA

A. Environmental Results

The Laboratory XL Project will achieve superior environmental performance, beyond what is achieved by the current RCRA regulatory system, in three key areas:

- a) Pollution Prevention: Environmental impacts will be minimized through pollution prevention policies, procedures and tools and improved hazardous chemical management practices;
- b) Streamlining the Regulatory Process: Streamline the regulatory process and coordinating EPA and OSHA regulatory compliance; and
- c) Environmental Awareness. The continuous improvement of the EMS for laboratories will enhance environmental awareness among researchers and students.

Pollution Prevention. The Laboratory Environmental Management Standard is a significant improvement in that it makes explicit to the research community that there is an institutional commitment in the form of a policy to prevent pollution, a procedure for conducting an annual survey of hazardous chemicals of concern and a system to reduce the potential for hazardous chemicals to accumulate and become wastes. See Appendices 1 and 2 for the complete Environmental Management Standard and Minimum Performance Criteria. By way of example, however, each XL Participant's Environmental Management Plan must include or reference:

- * a pollution prevention plan
- * defined procedures for conducting an annual survey of laboratories that potentially store hazardous chemicals of concern ("HCOC")
- * defined procedures for conducting laboratory decommissionings (e.g., cleanouts)
- * defined procedures for the timely removal of hazardous materials and wastes from the laboratory for the purpose of determining reuse/recycling opportunities and avoiding unnecessary purchasing of hazardous materials
- * defined procedures governing benchtop and "treatment in container" practices, if applicable.

The current regulatory model does little to encourage researchers to identify hazardous chemicals on the shelf as hazardous waste. One targeted area for the demonstration of superior environmental performance will be enhanced management and reuse of laboratory hazardous chemicals. For example, chemicals that are no longer of sufficient purity for research use may be reused or recycled into teaching laboratories. Additionally, waste reduction will occur as a result of better systems to exchange and reuse hazardous chemicals throughout the institution.

According to a 1996 survey of approximately 100 academic institutions by the Campus, Safety, Health and Environmental Management Association, nearly 95% of respondents reported that they redistributed or recycled less than 3% of the hazardous chemical waste otherwise destined for disposal.

The EMP includes a requirement to define a list of "hazardous chemicals of concern" and annually conduct a risk evaluation survey of these chemicals in the laboratory. This list will be generated by

EHS professionals at each institution based on regulatory concerns, risk concerns and potential chemical reactions. The minimum listing criteria at each institution would include:

- * Chemicals given an expiration date by manufacturer due to safety considerations (e.g., peroxide forming chemicals, etc.)
- * Chemicals which meet the RCRA definitions of reactive or corrosive (flammables are covered by fire department restrictions; in general, toxics are hazardous during their use, not during storage)
- * Poison Inhalation Hazard designation by DOT (covers serious toxics)
- * Other chemicals as determined by professional judgment to present a risk to non-lab workers or the environment
- * Chemicals may be delisted from the HCOC if there are insufficient quantities to pose a risk.

This list will be developed on an institution-by-institution basis because the types of hazardous chemicals at a particular institution will vary with the type of research work performed there. This list will be reviewed on an annual basis and updated to assure that it covers an adequate breadth of hazardous materials. This documented evaluation will enhance both waste and risk minimization efforts, and move laboratory personnel and inspectors away from semantic battles over whether a hazardous material on the shelf is a RCRA waste.

The annual survey directly addresses the problems associated with the accumulation of hazardous chemicals on the shelf. Federal EPA inspectors have repeatedly stressed that this problem is a priority concern. This XL Project goes beyond the "waste" management regulations prescribed in RCRA by addressing this "upstream" issue at its source. Such surveys will support institutional chemical redistribution and/or the timely disposal of hazardous chemicals that are approaching or have exceeded their shelf life. The survey will also document that hazardous chemicals of concern that remain on the shelf have been assessed for product integrity. The EMP will contain corrective action requirements for each institution in the event that non-conformances are observed.

Streamlined Regulatory Requirements. As demonstrated by the effort to develop the Integrated Contingency Plan, Federal agencies have placed high value on coordination between regulatory programs. Laboratory workers and researchers are already regulated by the requirements of OSHA's 29 CFR 1910.1450 (Occupational Exposure to Hazardous Chemicals in Laboratories) which requires the development of a Chemical Hygiene Plan (CHP) to ensure the health and safety of laboratory workers handling hazardous chemicals. The Laboratory XL model of defined policies and procedures will effectively manage laboratory wastes at every stage of their disposition, including full compliance with RCRA requirements at the institutional level. Minimum performance criteria ensure that enforceable safeguards will be in place. Moreover, the hazardous chemical survey and other procedures defined in the Environmental Management Plan will minimize hazardous waste by shifting management efforts from the traditional RCRA-focused - end-of-pipe to upstream sources of waste resulting in performance that exceeds the current RCRA program requirements.

By streamlining and coordinating regulatory programs, an integrated and transferable Laboratory Environmental Management Standard would allow scientists and researchers who move from one

institution to another, or temporarily perform research on a sabbatical at a different institution, to be subject to and familiar with a consistent model. (See Section III.E.) This would help ameliorate many of the current sources of regulatory confusion and result in enhanced performance.

Environmental Awareness. Training, defined policies and procedures, enhanced audit programs and pollution prevention strategies are key elements of superior environmental performance. Under the current system, these elements often receive less attention than they should because EH&S staff are focused on less pro-active issues such as managing laboratories as satellite storage areas. By allowing the institutional EH&S staff to schedule routine pick-ups of laboratory wastes at more suitable intervals (e.g., 2-3 weeks rather than 3-days under the satellite accumulation rule), the XL Participants will be able to more proactively focus its resources on training and audit/corrective action programs and the establishment and administration of waste-exchange and hazardous chemical redistribution programs.

Currently, RCRA does not require training for those researchers generating wastes in satellite areas. Nor does RCRA require internal inspections of hazardous wastes stored in satellite accumulation areas. Under this Project XL, laboratory workers will receive enhanced hazardous chemical training with respect to laboratory waste pollution prevention and the environmental management practices at the institution. This training is also likely to result in benefits for students as they graduate and pursue their careers equipped with an increased environmental awareness and respect for environmental aspects of their jobs.

Additionally, evaluations and audits will be performed to help assure conformance with the institutional EMP. Together with the enhanced environmental awareness training, internal audits/correction actions will provide a way to continually improve the laboratory EMS and help achieve improved environmental protection.

XL Participants will continue to comply with all other federal, state and local environmental laws and regulations not specifically waived or substituted pursuant to EPA's site specific rule for this project and Vermont's and Massachusetts' variance, and will fully comply with RCRA at the institutional level. This project will not result in media transfer of chemicals (e.g., will not result in former RCRA wastes being disposed to water.)

B. Cost Savings and Paperwork Reduction

Laboratory waste management currently accounts for the most substantial expense for environmental, health and safety programs at the XL Participants. This XL Project will allow academic institutions to more effectively promote and implement waste minimization programs in laboratories which will result in reduced waste disposal costs and reduced chemical purchasing costs. The opportunity to develop a systematic, planned procedure for the pickup, consolidation and disposal of laboratory wastes will also enable participating institutions to more effectively utilize their EH&S staff for proactive activities. However, since RCRA requirements will remain in full effect at the institutional level, the XL Participants do not expect to significantly reduce the paperwork associated with compliance.

C. Stakeholder Involvement and Support

From the beginning of the Laboratory XL process, the Signatories have placed a high priority on having a diverse stakeholders review and support this project. There has been both national and local stakeholder involvement in the development of the Laboratory Environmental Management Standard and substantive elements of this Final Project Agreement. This activity is described below and additional information, such as a listing of national stakeholders and letters of support are included in Appendix 6.

National Stakeholders: The initial stakeholder group was a national assembly of experts in laboratory chemical and environmental safety. The purpose of this group was twofold: (1) to assure that the XL proposal reflected state of the art thinking with regard to controlling the potential impacts of laboratory chemicals; and (2) to ensure that the Laboratory Environmental Management Standard developed by the XL Participants could reasonably apply to a broad spectrum of small, medium and large institutions.

This national group participated in the development of the XL proposal in a number of ways.

- * The Laboratory Consortium for Environmental Excellence (LCEE) sponsored national stakeholders' meeting which were conducted in November 1997 in Boston, MA and March 1998 in Naples, Florida. These meetings included a wide variety of people, including representatives of different-sized colleges and universities, representatives of non-governmental organizations (NGOs) and representatives of various branches of the EPA. These meetings were instrumental in the formation and revision of the XL proposal as presented to the EPA in February 1998 and then update in April 1998.

- * People unable to attend the national stakeholders' meetings were able to review the various drafts of the proposal at the Laboratory XL Home Page on the World Wide Web and comment electronically through the Laboratory XL e-mail listserve. Additionally, copies of the XL proposal were mailed to individuals or organizations upon request. Over 100 people reviewed the proposals in this way.

- * Several professional groups reviewed and commented on the Laboratory XL proposal, including: (1) the Laboratory Waste Management Task Force of the American Chemical Society; and (2) the Government Relations Committee of the Campus Safety, Health and Environmental Management Division of the National Safety Council

- * Many national and regional environmental or not-for-profit organizations were informed of this XL Project and asked to participate. Those NGOs that have participated in the XL Proposal include: the Tellus Institute, a not-for-profit organization with expertise in pollution prevention, sustainability and environmental performance measurement; Second Nature, an NGO promoting environmental literacy in secondary education; and Ecologia, an organization whose Board Member, Ed Schoener, has been a key NGO representative in the United States' participation in the development of ISO 14031, the Environmental Performance Evaluation standard.

Local Stakeholders. The XL Participants also identified groups of local stakeholders as part of the Lab XL process. In a decentralized, publicly accessible organization such as an academic institution, a local stakeholder process constitutes a formidable task. Efforts to involve local stakeholders at each institution have included the following.

- * University Faculty and Staff have been involved in the development of the XL Proposal. The

XL proposal has been reviewed at each XL Participant by the Safety Committee (or equivalent), relevant academic or administrative bodies, Chemistry Departments, legal counsel and relevant student environmental organizations. For example, at UVM, the Environmental Council, which is comprised of faculty, administrators, researchers and students, has reviewed the proposal.

* University students have been informed of, or had access to, the Lab XL process through the campus newspaper, campus Web Site and the Laboratory XL Home Page. Students, and other interested parties, have been invited to comment on the XL proposal or participate in the XL process.

* Each XL Participant has identified community environmental stakeholders, including neighborhood organizations, standing committees (e.g., solid waste) for the county or city, or other local environmental organizations. The XL Participants are making efforts to inform them of the Laboratory XL Project and invite them to make comments.

* Regulators with jurisdiction over laboratories have been involved in reviewing the XL proposal. Agencies involved include the Vermont Department of Environmental Conservation, the Massachusetts Department of Environmental Protection, Burlington Local Emergency Planning Committee, Boston Local Emergency Planning Committee, Massachusetts Water Resources Authority, Burlington Sewer Commission and local Fire Departments.

Stakeholder Process Going Forward. In addition to those stakeholder involvement steps described above, each XL Participant will take the following follow-up steps prior to the signing of a Final Project Agreement.

* Finalize the list of potential local stakeholders and solicit their participation in the project going forward;

* Solicit further participation through local newspapers and other appropriate communication vehicles

* Participate in a meeting of a local neighborhood association, environmental organization or standing committee

* Host an open meeting to inform stakeholders of the XL Project.

* Continue to inform stakeholders of the Lab XL process through the campus newspaper, campus Web Site and the Lab XL Home Page.

* Make environmental performance reports publicly accessible and available per Section III.G and maintain records of stakeholder involvement over the duration of the project.

In addition to these local initiatives, XL Participants will be presenting presentations/workshops at the Campus Safety, Health and Environmental Management Association meeting in New Orleans in July, 1998; and presentation at the American Chemical Society meeting in Boston in August, 1998.

D. Innovative/Multi-Media Pollution Prevention

The Laboratory XL Project is innovative from regulatory, management and educational perspectives. In order to measure the success of multi-media pollution prevention resulting from the project, Signatories will first evaluate the benefits of a performance-based process standard in comparison to prescriptive, rigid regulatory requirements. Second, Signatories will evaluate the effective integration of OSHA-based health and safety requirements for hazardous chemicals with

EPA's environmental requirements for the same hazardous chemicals. Third, Signatories will evaluate the assumption that a more effective environmental management system and a more sensible treatment model for laboratories will result in reductions in environmental impacts and more environmentally informed researchers. This latter element is especially significant because the XL Participants, through the Laboratory Consortium for Environmental Excellence (LCEE), is committed to fully sharing this project's products - relevant guidance, information and technical expertise - with interested parties, including small colleges and secondary schools that do not have the funds or expertise to adequately manage their hazardous waste.

The Laboratory XL Project will promote pollution prevention in a number of very concrete ways as described in Section III.A. The Laboratory Environmental Management Standard, included as Appendix 1, emphasizes pollution prevention as a core laboratory competency which will, in policy and practice, be incorporated into each institution's EMP.

E. Transferability

The Laboratory Environmental Management Standard is designed to offer a national model for research and teaching laboratories. The search for an alternative regulatory system for managing hazardous wastes in laboratories is currently a source of discussion in California, North Carolina and other regions of the country. The State of Minnesota has expressed interest in testing this Laboratory Environmental Management Standard and other research institutions have expressed interest in becoming "second tier adopters" and signing onto this FPA (See Section VI.D.) The LCEE has received letters of support from such national groups as Campus Safety, Health and Environmental Management Association (CSHEMA), American Chemical Society (ACS), National Association of College and Business Organization (NACUBO) and the National Research Council. The XL Participants and the LCEE will use all reasonable means (e.g., publications, performance reports, Web Page updates, conferences) to keep a national audience informed of the lessons learned from this XL Project.

F. Feasibility

Each XL Participant has the financial capability, personnel and senior management commitment necessary to implement the elements of this project.

The Agencies, by signing this FPA, agree, subject to any review procedures necessary to implement the legal mechanism for this project (e.g., most likely to be a site specific rule making) that they have the authority to put into effect the regulatory flexibility requested by the Participants in this FPA as set forth in Section II.E.

G. Monitoring, Reporting and Evaluation Methods

EPA expects that Project XL participants will make project information, including performance data, available to Stakeholders in a form that is easy to understand.

As described in Section IV, each XL Participant will be responsible for collecting data and monitoring environmental performance, using selected Environmental Performance Indicators (EPIs) as agreed to by the Project Signatories and relevant stakeholders.. Baseline performance will be assessed during the first six (6) months of implementation. Thereafter, environmental performance will be evaluated against previous environmental performance data. A summary of monitoring, reporting and evaluation methods is described in the Laboratory XL Project Public Performance Reports included as Table 3.

Table 3. Laboratory XL Project Public Performance Reports

Report	
Content	
Due Date	
Availability	
Baseline	Provides representative baseline data with respect to Environmental Performance Indicators (EPIs)
	Nine months after the effective date of the final rule
	Disseminated to identified stakeholders, posted on Web Page, available upon request
First Year	Summary of environmental performance and progress against baseline performance data
	15th month after effective date of final rule.
	Disseminated to identified stakeholders, posted on Web Page, available upon request
Second Year	Response to agency review/inspection of environmental performance
	Expected to occur between 15th and 30th month after effective date
	Disseminated to identified stakeholders, posted on Web Page, available upon request.
Second Year	Evaluation of environmental performance to date, including conformance review and corrective action(s) if any, and summary of lessons learned
	30th month after effective date of final rule.
	Disseminated to identified stakeholders, posted on Web Page, available upon request, open meeting hosted at each XL Project site.
Third Year	Response to agency review/inspection of environmental performance
	Expected to occur between 30th and 42th month after effective date
	Disseminated to identified stakeholders, posted on Web Page, available upon request.
Final Report	Summary of environmental performance and progress against past performance data
	42nd month after effective date of final rule.
	Disseminated to identified stakeholders, posted on Web Page, available upon request, open meeting hosted at each XL Project site.

H. Avoidance of Shifting Risk Burden

Implementation of a comprehensive, integrated EMP, consistent with the Laboratory Environmental Management Standard, will minimize waste and reduce risk of spills, releases, accidents and injuries. No unjust or disproportionate shifting of the risk burden will occur.

IV. PERFORMANCE GOALS AND INDICATORS

As part of this FPA, the XL Participants agree to measure and delineate their environmental performance with the specified goals of this XL Project. Environmental goals and indicators are outlined in Table 4. "EPI" stands for Environmental Performance Indicator which is a specific criterion that provides information about the XL Participant's environmental performance. In this Table, EPIs are classified by "Type" as either pollution prevention, compliance (streamlined regulatory requirements) or environmental awareness to be consistent with the description of "Environmental Results" defined in Section III.A. "Purpose" and "Goals" should be self-explanatory.

As discussed in Section III.G "Monitoring, Reporting and Evaluation Methods," a baseline assessment will be conducted at each XL Participant site. The baseline assessment will include:

- A. a survey of hazardous chemicals of concern and quantity stored on the shelf in those laboratories covered by this XL Project;
- B. measurement of laboratory wastes generated during a defined time period (e.g. over a six month period);
- C. environmental survey of laboratory researchers or relevant personnel;
- D. an evaluation of the amount of laboratory hazardous materials currently reused or redistributed (Note: each XL Participant currently estimates this rate as consistent with CSHEMA data - less than 3%)

Table. 4 Environmental Goals and Indicators.

Performance Type

Purpose

EPI

Goal

1. Pollution Prevention

Annual surveys of Hazardous Chemicals of Concern (HCOC)

HCOC on shelf that exceed institution defined "shelf life"

"No non-conformances" in laboratories by year 4

2. Pollution Prevention

Verify annual surveys of Hazardous Chemicals of Concern

Surveys completed

100% completion of surveys each year

3. Pollution Prevention

Conduct pollution prevention opportunity assessments

Assessments completed

One opportunity assessment per laboratory per year*

4. Pollution Prevention

Measure hazardous materials reuse and redistribution

- Amount reused or redistributed within the institution (normalized and compared with and without RCRA in the lab) and cost savings

Twenty (20) percent increase in reuse/redistribution from baseline over life of project

5. Pollution Prevention

Measure laboratory waste generation rates

- Total laboratory wastes per institution (normalized and compared with and without RCRA in the lab) and cost savings

Ten (10) percent reduction of hazardous waste from baseline over life of project

6. Environmental Awareness

Assess hazardous materials and environmental awareness of laboratory workers

Survey scores

Scores demonstrate improvement over life of project (Note: the same people will not necessarily be tested)

7. Environmental Awareness

Provide environmental awareness training to more diverse group

Students in teaching labs and laboratory workers receiving training

Increase number or percentage of students and lab workers receiving training

8. Compliance

Evaluate Environmental Management Program effectiveness

Objectives and targets

Achievement of objectives and targets

9. Compliance

Audit Environmental Management Program conformance**

Rating on scale of 1 to 4***

Score improvement

* An opportunity assessment conducted for one laboratory wastestream may be broadly applied to other laboratories.

** EPA and the States are expected to evaluate program conformance as well as the XL Participants.

*** This internal EMS audit will assess laboratory conformance to the XL Participant's Environmental Management Plan in accordance with audit or inspection protocols developed by the institution. It is expected that the EMS audits will be conducted by second or third party auditors. The scale of 1 to 4 will include 1 = no objective evidence of conformance, 2 = some objective evidence of conformance, 3 = strong objective evidence of conformance, 4 = clearly conforms. Scores of 1 or 2 will be deemed to be evidence of non-conformance.

Note: UMass - Amherst will only provide data with respect to items # 3 - 7

It is important to note that the defined P2 goals in Table 5 are conservative. Because of the great variability in research activity from year to year, and the realities of the research culture and grant

cycles, it is difficult to commit to aggressive, quantifiable reductions in laboratory wastes. It is our expectation that a clear pattern of pollution prevention, compliance and enhanced environmental awareness will, in total, demonstrate the superior environmental performance of this Laboratory XL Project.

V. ENFORCEABILITY

The XL Participants understand that all XL Projects must include legally enforceable mechanisms in order to ensure accountability. In this project, the "minimum performance criteria" specified in the Laboratory Environmental Management Standard (see Appendix 1) will become part of a site-specific federal rule which EPA will have the ability to enforce. The XL Participants understand that EPA has the authority to inspect laboratories in accordance with the Agency's standard inspection procedures and legal rights. The XL Participants further understand that a clear pattern of non-conformance on the part of a university with either the minimum performance criteria or the institution-specific Environmental Management Plan may result in elimination from the Project XL and the re-institution of the RCRA regulations from which flexibility has been granted.

The enforcement response on the part of EPA will vary depending upon the performance of a given institution. Each institution will be evaluated based on the following four criteria:

1. Does the institution have an Environmental Management Plan ("EMP") as required by the Laboratory Environmental Management Standard?
2. Does the institution's EMP include the required policy and procedural elements specified in the Laboratory Environmental Management Standard?
3. Is the institution meeting the Minimum Performance Criteria as set forth in the Laboratory Environmental Management Standard in Appendix 2 of this Agreement?
4. To what degree does an institution's environmental management practices in the laboratory actually conform to the EMP?

An institution will receive a written Notice of Non-Conformance from EPA if upon inspection EPA observes:

1. That there are minor deficiencies in its compliance with the Minimum Performance Criteria; or
2. The institution's EMP substantially fails to incorporate the Minimum Performance Criteria; or
3. The institution's EMP has not been fully implemented, according to plan, even though the Minimum Performance Criteria are being met

The written Notice of Non-Conformance will allow for a 30-day correction period during which the institution will have the opportunity to address any problems highlighted in the Notice.

An institution will be removed from the XL program, will lose the accompanying benefits of this FPA and will be subject to the full force and effect of RCRA and its accompanying regulations, consistent with the Termination Section (VI.H) of this Agreement, if, upon inspection, EPA observes:

1. That the institution is in substantial non-compliance with the Minimum Performance Criteria;

or

2. That the institution has failed to develop or is in substantial non-conformance with its EMP.

VI. ADMINISTRATION OF THE FPA

A. Withdrawal from the FPA

Because this FPA is not legally enforceable, no Signatory may be legally compelled to continue with the project. However, it is the desire of the Project Signatories for the FPA to remain in effect and be implemented as fully as possible, and it is not their intent to terminate or withdraw from the FPA unless there is a compelling reason to do so.

The Project Signatories agree that appropriate grounds to seek withdrawal from the FPA could include (but not be limited to):

- * Substantial failure by another Signatory to implement the terms of the FPA;
- * Discovery of failure by another Signatory to disclose relevant facts during development of the project that would have substantially changed the outcome of the FPA;
- * Discovery of new information indicating that implementation of the project will present an imminent and substantial endangerment to public health or welfare, or the environment;
- * Substantial changes to the Laboratory Environmental Management Standard as a result of comments submitted during the public comment periods or rule-making; and/or
- * Non-conformance with the site specific rule.

Withdrawal from the FPA by any Signatory does not affect the legal status of a site-specific rule or any variance issued by MADEP or VTDEC.

Withdrawal from the FPA by a single XL Participant does not affect the legal status of the other XL Participants.

B. Modification of the FPA

At any time, a Signatory may modify the FPA with the concurrence of all of the other Signatories. Any modifications will be subject to notice and comment in the Federal Register. Participants will also provide notice to stakeholders to solicit their input on any proposed modifications prior to publication in the Federal Register.

C. Duration of the Agreement

This FPA will be in effect for a period of four (4) years from the time that the final rulemaking is signed, unless it is terminated earlier or extended by agreement of all parties. (If the Agreement is extended, the comments and input of stakeholders will be sought and a Federal Register Notice

will be published.) Any Signatory may terminate its participation in this project at any time.

D. Additional Signatories

Additional signatories, including academic institutions or organizations with research and teaching laboratories, may participate in this project, with the concurrence of the other Signatories, after the initial Laboratory XL Progress Report has been submitted (15 months) and the Signatories have had sixty days to evaluate the Report. The participation of additional signatories would be considered modifications under the terms of this FPA and therefore subject to notice and comment in the Federal Register. Any additional XL Participants would be required to provide notice to their local stakeholders to solicit input on participation prior to publication in the Federal Register and meet the requirements of stakeholder involvement described in Section III.C.

E. Public Participation

The Signatories will provide opportunities for public participation pursuant to the rulemaking and the terms of this FPA in accordance with Section III. C of this FPA.

F. Means of Giving Notice

All communications between the Project Signatories concerning the activities performed pursuant to the terms and conditions of this FPA, shall be directed to the individuals listed below by controlled or certified mail.

G. Dispute Resolution

Any dispute which arises under or with respect to this FPA will in the first instance be subject to informal negotiations between the Parties to the dispute. The period of informal negotiations will not exceed twenty (20) days from the time the dispute arises unless that period is extended by a written agreement of the Parties to the dispute. The dispute will be considered to have arisen when one Party sends to the other Parties a written Notice of Dispute.

In the event that the Parties cannot resolve a dispute by informal negotiations, the Parties may invoke non-binding mediation by setting forth the nature of the dispute with a proposal for resolution in a letter submitted to the Regional Administrator for EPA Region I. Prior to the issuance of an opinion the Regional Administrator may request an additional, informal mediation meeting. If so requested, the Regional Administrator will attempt to resolve the dispute by issuing a written opinion.

Any opinion, verbal or written, expressed by the Regional Administrator will be non-binding.

Nothing in this section will be construed to alter the provisions of Section VI.H. regarding Project Termination.

H. Termination

In order to provide adequate notice of termination, a Signatory wishing to terminate its involvement in this FPA will provide a written Notice of Termination to the non-terminating parties. EPA may also terminate this Agreement with an XL Participant if compliance with the terms of the final rule is deemed to be inadequate (see Section V). In such an instance, EPA may request that the non-conforming XL Participant submit both a written Notice of Termination to the non-terminating parties and a schedule for complying with applicable federal RCRA and state regulations within the time period specified below.

Termination under this subsection will take effect ninety (90) days following receipt of Notice of Termination by all non-terminating parties. The Parties anticipate that a disputed matter that leads to a Notice of Termination will have been reviewed through the Dispute Resolution procedure in section VI. G. above. Any party that receives a Notice of Termination may submit a Notice of Dispute to the Party that issued the Notice of Termination and, in that way, invoke the Dispute Resolution provisions of section VI.G. provided that matters already reviewed through Dispute Resolution will not be subject for further review and, provided further, that the Notice of Dispute must be issued within ten (10) days after Notice of Termination was received.

I. Effect of Termination

Upon termination, this FPA will no longer be in effect for the individual or collective Signatory(ies) and the regulations in effect prior to the rulemaking will become effective.

J. Periodic Review

The Parties will confer, on a periodic basis, to assess progress in implementing the Laboratory XL Project. Unless it is agreed otherwise, a review by the Signatories will take place at least annually. Not later than thirty (30) days following a Periodic Performance Review Conference, XL Participants will post a summary of the minutes of that conference to the Laboratory XL Web Page and provide all identified and local stakeholders with a copy of the summary minutes. Any additional comments of stakeholders will be reported to the Agencies.

Effective Date

This FPA is effective on the date it is dated and signed by EPA's Regional Administrator for Region I.

1. Mr. John DeVillars
Regional Administrator
EPA Region I
One Congress Street
Boston, MA 02109

2. Mr. James Miller
Chief, Waste Division
Department of Environmental Protection
One Winter Street
Boston, MA 02108

3. Mr. Peter Marshall
Chief, Management and Prevention
Waste Management Division
Department of Environmental Conservation
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4. Mr. Peter McKenzie
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5. Ms. Zehra Schneider Graham
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6. Donald Robinson
Director, Environmental Health and Safety
University of Massachusetts - Amherst
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7. Mr. Geoffrey Gamble
Provost
University of Vermont
655 D Spear Street
P.O. Box 50570
Burlington, VT 05405

SIGNATURES OF THE PROJECT SIGNATORIES

1. Mr. John DeVillars
Regional Administrator
U.S. Environmental Protection Agency
Signature _____
Date _____

2. Mr. James Miller
Chief, Waste Division
Department of Environmental Protection
Signature _____
Date _____

3. Mr. Peter Marshall
Department of Environmental Conservation
Montpelier, VT
Signature _____
Date _____

4. Mr. Peter McKenzie
Boston College
Signature _____
Date _____

5. Ms. Zehra Schneider Graham
University of Massachusetts - Boston
Signature _____
Date _____

6. Mr. Donald Robinson
Director, Environmental Health and Safety
University of Massachusetts - Amherst
Signature _____
Date _____

7. Mr. Geoffrey Gamble
Provost
University of Vermont
Signature _____
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New England Academic Institutions
Final Project Agreement