Program Accomplishments

Project XL: An Annual Look at the Program's Progress

Project XL is an experimental program designed to improve America's environmental protection system, in particular the regulations under which the system operates. It does so by allowing businesses, communities, and other organizations to pilot test environmental strategies that promise better results than what would be expected under existing requirements. The goal is to identify new ideas and approaches that work and to then put them to use on a broader scale so the environment, and more facilities and communities, can benefit.

Project XL is an important part of a much broader strategy designed to promote environmental innovation to achieve better environmental results. That strategy has just been updated, and it calls for continued testing of new ideas and approaches that can help address a growing and increasingly complex set of problems. It also calls for strengthening EPA's critical partnership with states and tribes, focusing innovation efforts on a set of high-priority problems, and creating a culture and organizational system that supports innovation throughout the Agency. These priorities provide a strategic framework for innovation efforts, and going forward, they will guide EPA's efforts to expand and improve our environmental protection system.

Pioneering Projects

Weyerhaeuser and Intel Making Progress

Project XL's potential for bringing about important advances in environmental protection is particularly evident in projects that have been underway for several years.

Weyerhaeuser, which signed a final project agreement (FPA) in 1997**,** is investing in a number of aggressive pollution prevention measures for its pulp and paper manufacturing plant in Oglethorpe, Georgia. Innovations are being tested to minimize the facility's impact on the environment and surrounding community, one of which provides an alternative to the end-of-pipe control for addressing hazardous air pollutant emissions that is an option under EPA's "cluster rule," which was promulgated in 1998. The potential application of this option to other pulp and paper facilities became more evident as a result of the Weyerhaeuser XL project experience.

Weyerhaeuser is advancing environmental protection in many other ways. A facility-wide cap for controlling national ambient air emissions of pollutants, such as particulate matter, sulfur dioxide (SO_2), and nitrogen oxides (NO_x), is expected to cut total allowable emissions by 60 percent below requirements. New technology being tested has the potential to cut bleach plant effluent in half. Likewise, by modernizing its pulp process and by recycling and reusing certain materials that were previously treated as waste, Weyerhaeuser expects to reduce its solid waste generation by 50 percent.

EPA's latest innovation strategy is based on years of experience in pursuing new tools and approaches for improving environmental results. That experience grew considerably in the 1990s when EPA and others began to realize that our nation's traditional environmental protection system alone could not fully address complex environmental challenges such as global climate change, polluted runoff, and loss of habitat and biodiversity. Flexibility in EPA's operations and regulatory management is one tool in our environmental protection toolkit that goes a long way to harnessing the creative problem-solving capacity of experienced environmental managers. New scientific and technological advances that have occurred since many existing laws were passed also provide new opportunities for transformation and improvements. In response to these and other factors, EPA and the states launched a wave of innovative initiatives, and Project XL has been one of the most far-reaching.

Testing promising innovations to improve environmental protection is what Project XL is all about, but the real benefit of the program will come from identifying improvements that can be adopted on a much broader scale. That benefit can only be realized once an experiment proves successful through evaluation. Prior to each project, EPA works with the project sponsors to develop monitoring and reporting criteria that can be used to determine how well projects are working. EPA reports the project results in an annual report, and this latest one shows 2001 was a very active, productive year.

As of December 2001, 51 projects are in various stages of implementation, and the results—measured at different stages for the projects—are encouraging. They show benefits for the environment, for the project sponsor, and for the communities where these projects are located.

Looking ahead, EPA expects that Project XL's results will grow considerably. They will do so at the individual test sites as projects mature, the intended benefits are realized, and new opportunities—not foreseen at the time of development—are revealed. One example of how one innovation can lead to another is seen at the International Paper

(IP) plant along the Androscoggin River in Maine. There, the company is testing ways to improve the quality of its effluent rather than using the best management practices required under EPA's pulp and paper rule. After making an improvement in pulp screening, the company was able to remove its pulp in a cleaner manner, cutting energy costs by $147,000 a year. But that was only the beginning of even bigger cost savings. In the course of making this change, the company determined that it could meet specific heating needs by using already heated wastewater rather than producing fresh steam. IP invested $15,000 to upgrade its heating pump and cut its annual energy costs by $500,000. Another process improvement that resulted in more consistent pulp washing increased those savings to $647,000 a year. Along with cost savings, the effluent improvements have also reduced the plant's chemical oxygen demand (COD) discharge by about 36 percent.

Such benefits are clearly good for IP and the surrounding area. But they may also be available for many more pulp and paper companies and communities in the years ahead. That is because the results from this project may help clarify the application of new effluent technologies at other mills and inform EPA's future rule making regarding COD and color at pulp and paper mills. Therein lies the true value of Project XL—revealing improvements that can be applied either voluntarily or through regulatory change to achieve better results on a much broader scale.

Project XL's benefits for the environment, for project sponsors, and for communities through 2001 are highlighted below.

Benefits for the Environment

Before getting approval, all project sponsors must explain how their approach will produce better results for the environment. The projected benefits cover a range of issues, such as reducing air emissions, water discharges, or hazardous waste. But they also cover issues that have not typically been addressed through regulation, such as

Pioneering Projects

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Weyerhaeuser's pollution prevention efforts are paying off for the environment and the company's bottom line. For example, biological oxygen demand and total suspended solids in wastewater effluent have been reduced by 27 percent and 20 percent, respectively. Solid waste has fallen by 30 percent, and emissions of particulate matter, total reduced sulfur, NO_x, and SO_2, are down anywhere from 8 to 18 percent. Along with these environmental benefits, Weyerhaeuser's recycling and reuse of lime mud is saving the company $200,000 a year. Longer term, Weyerhaeuser expects to avoid $10 million in future capital spending on environmental investments.

Intel, which signed an FPA in 1996**,** has avoided millions of dollars in production delays—a real competitive advantage in the quick-to-market semiconductor industry—by eliminating 30 to 50 annual permit reviews at its Chandler, Arizona, facility. It has done so by replacing individual permits for each air emission source with a single, facility-wide permit that caps the facility's total emissions. This approach streamlines regulatory transactions and allows Intel to make equipment and process changes. It also enables the company to expand its operations as long as the overall air quality limits are met, as evidenced by a decision in 2000 to invest $2 billion for construction of a new high-volume production manufacturing facility at the site.

Intel has made a number of precedent-setting moves in its approach to handling environmental information. By agreeing to place all of its environmental data on the Internet, Intel provided local citizens and other interested parties with a quick, easy means of tracking

Pioneering Projects

Continued

its environmental performance. The company's consolidated report for federal, state, county, and local environmental requirements may serve as a reporting model for other semiconductor manufacturers, and it is already influencing the development of environmental information systems at the national level. In addition, by integrating its emergency planning and preparedness information with the local fire department's computer-based emergency management system, Intel is ensuring better coordination and preparedness.

Environmental benefits continue to accrue. Intel has stayed well under the criteria and hazardous air emissions limits specified in its facility-wide cap. In addition, the company has exceeded its waste management goals, recycling 84 percent of solid waste and 55 percent of hazardous waste in 2001. Recognizing the importance of water conservation in the southwest, Intel also followed through on an aggressive commitment to reuse treated effluent for its cooling and landscaping needs. While a 100 percent water reuse system did not prove economically feasible, stakeholders supported the company in using a system that enables consistent reuse of at least 95 percent.

The current project agreement expires at the end of the year. However, based on the project's successful operation, Intel, EPA, the state and local agencies and other involved parties are interested in extending it for another five-year term. Discussions concerning this action are underway. While some minor adjustments are expected, Intel is proposing to leave much of the existing agreement intact. The goal is to have a renewed agreement in place by December 31, 2001.

reducing the life cycle impact of products, improving energy efficiency, or promoting smart growth.

Some of the more recent projects show promise for achieving results just as strong as those seen with some of the earlier projects, such as Intel and Weyerhaeuser. For example:

- **Imation Corporation** found that a plant-wide emissions cap for controlling volatile organic compounds (VOCs) worked extremely well. The cap was set at 150 tons per year, and yet actual emissions were only 22 tons in 2000, an 85 percent reduction below what was allowable.

- **USFilter Recovery Services, Inc.,** expects that over the next three years an integrated waste management system will enable it to recover 2,250 pounds of copper, nickel, and zinc that would otherwise go into landfills.

- **Georgia-Pacific Company's** Mill in Big Island, Virginia, anticipates that an innovative system for recovering chemicals from its pulp and paper operations will reduce emissions of hazardous air pollutants from 2.97 pounds to 0.02 pounds per ton of resulting evaporated solids.

- **International Business Machines (IBM)** estimates that using a more efficient plating process for its Essex Junction, Vermont, facility will virtually eliminate the use and emission of perfluorinated compounds, one of the most potent greenhouse gases. And an allowance to recycle and reuse rather than treat and landfill a certain type of waste will cut hazardous waste from its East Fishkill, New York, facility by 300 tons a year, or 35 percent.

Table 1 shows the cumulative environmental benefits of 19 projects that reported data for the period 1997 to 2001. These benefits highlight the many ways that innovations developed through Project XL can benefit the environment.

Table 1: Cumulative Environmental Benefits for Select Project Sponsors: 1997–2001*

ELIMINATED:	28,319 tons of emissions of criteria air pollutants–NO_x, SO_2, particulate matter, carbon monoxide
REDUCED:	2,467 tons of VOCs emissions
REDUCED:	467 tons per year of hazardous air pollutant emissions
RECYCLED:	20,540 tons of solid waste
RECYCLED:	2,170 tons of nonhazardous chemical waste
RECYCLED:	1,450 tons of hazardous waste
REUSED:	1,237 millions of gallons per day of water

* This summary is based on 1997-2001 data reported by Andersen, Autoliv, Crompton, Department of Defense Elmendorf AFB, Department of Defense Vandenberg AFB, ExxonMobil, Georgia-Pacific, IBM East Fishkill, IBM Vermont, Imation, HADCO, Intel, Massachusetts Department of Environmental Protection, Merck, Molex, New England Universities' Laboratories, Steele County, USFilter, and Weyerhaeuser. The data includes projected results for 2001. They are cumulative and based on varying degrees of project implementation. Some facilities have reported since 1997, while others began reporting more recently.

Benefits for Project Sponsors

As the name implies, firms participating in Project XL gain recognition for environmental excellence and leadership. This recognition can be very helpful in improving relations with regulatory agencies and communities and in meeting the expectations of environmentally conscious consumers and shareholders.

Beyond recognition, firms participate in Project XL for other reasons. Some see a chance to use a promising new technology that can cut costs and improve efficiency. Others want to make a process change that has long seemed sensible for their operation, but they have been unable to do so given traditional regulatory requirements. Whatever the motivation, EPA encourages firms to view the flexibility offered by Project XL not as a regulatory "break" but as an opportunity to create incentives that in the short-term compensate the project sponsor for its exploratory efforts and in the long-term provide encouragement for many more facilities to improve environmental performance.

As Project XL continues, the significance and variety of operational and economic benefits for project sponsors will expand and accrue over time. For example, the New England Universities' Laboratories project has been designed to develop a more cost-effective plan for regulating university laboratories. It will implement programs to enhance laboratory safety and illustrate better systems to manage laboratory environmental impacts. In doing so, it also can serve as a model for other colleges and universities throughout the country that are committed to improving environmental performance.

Table 2 highlights a number of actual and anticipated economic benefits from individual projects through 2001.

Table 2: Economic Benefits for Select Project Sponsors

Crompton Corporation, a specialty chemical manufacturer, continues to add up cost savings for its Sistersville, West Virginia Plant. The company saved $228,000 in 1997, $25,000 in 1998, $1,179,000 in 1999, $1,262,000 in 2000, and $940,000 in the first half of 2001 from new waste minimization and pollution prevention activities. Crompton estimates these activities will save approximately $1 million a year in recurring costs, while a related deferral gained for a Resource Conservation and Recovery Act requirement will save an additional $800,000 over a five year period.

Eastman Kodak Corporation found economic benefits from using a risk-management tool in its selection of new chemical candidates for its imaging operations. That tool—a Pollution Prevention Framework developed by EPA—enabled the company to identify chemicals with less harmful environmental effects much earlier in the product development cycle and avoid carrying problem candidates through later stages of development. As a result of this pre-screening, Kodak was able to avoid between $13,500 and $100,000 of additional costs for each $100,000 typically invested in the research, development, and regulatory review of new chemical candidates.

The National Aeronautics and Space Administration (NASA) estimates cost savings from implementing a consolidated and streamlined environmental compliance information collection and reporting system. NASA anticipates that reducing paper, postage, and personnel requirements will produce annual cost savings of $186,500, or approximately $932,500 over a five-year period. These savings will be invested in site-specific environmental remediation projects at the Agency's White Sands Test Facility.

Autoliv ASP, Inc., a manufacturer of automobile safety products, expects to save an estimated $316,000 in hazardous waste disposal costs. It will do so by adapting the technology and pollution-control devices currently used in its metals recovery facility to process its pyrotechnical waste materials on-site rather then sending them off-site for open burning. In addition to recovering and recycling certain materials, such as copper, this approach will also cut air emissions significantly.

Department of Defense's Elmendorf Air Force Base (AFB) aims to streamline the application, implementation, management, and renewal process for its Title V Clean Air Act permit by reducing monitoring and record keeping. Elmendorf AFB estimates that total monitoring, record keeping, reporting, and permit management costs will decrease by about 80 percent, yielding about $1.5 million in savings over six years. These savings will be used to reduce emissions of hazardous air contaminants and other pollution prevention projects.

Buncombe County's Bioreactor Project has been researching a new method for operating sanitary landfills—the bioreactor method. Buncombe realized a significant economic benefit, saving nearly $400,000, when constructing Cell 3 of the landfill using the alternative liner rather than the standard composite system. The county estimates that it will save a total of $5 million through the build out of the facility if the alternative liner system is used on all the cells. Increased landfill disposal capacity due to rapid settlement during the operational period of the landfill will lead to more economical operations. Buncombe County, North Carolina, estimates a potential cost savings of $5 to $10 million in reduced construction costs for additional landfill capacity if the anticipated increase of 20 to 30 percent in additional waste volume can be achieved due to rapid waste decomposition. The county is also estimating a savings of $9 million over the life of the landfill if leachate hauling and off-site treatment can be eliminated due to recirculation.

Benefits for the Community

Project XL is benefiting communities in a variety of ways, and as Table 3 shows, the benefits may take many different forms. For example, allowing firms to redesign standard reporting mechanisms provides an opportunity to respond more specifically to citizen concerns about environmental management and performance issues. Similarly, the emphasis placed on transparency means that citizens have more opportunity to provide input during project development and implementation.

One project that reflects a variety of community benefits is located in Steele County, Minnesota. There, nine industrial facilities are working together to reduce the levels of industrial pollutants and wastewater flowing to local wastewater treatment facilities. The ultimate goal is to work toward a multimedia permit that covers all the facilities' air emissions, solid and hazardous waste, effluent discharges, and chemical storage. Under the current agreement, the participants have agreed to have any notices of significant noncompliance posted on the state environmental agency's Web site, which means the community will have access to that information for a longer period of time—in a very visible spot—than it would with a one-time newspaper notice. In addition, the conservation elements of the project are expected to increase the life span of the local wastewater infrastructure, delaying infrastructure investments and saving taxpayers millions of dollars in the process. Those elements will also free up capacity that may be needed in order for any new development to occur. Finally, the project will promote greater cooperation and creativity among regulated facilities in the area and provide a strong example of environmental stewardship for others to follow.

In Fort Worth, Texas, a more cost-effective approach for demolishing asbestos-tainted buildings could pave the way for brownfields redevelopment to occur at a faster pace, improving the quality of life and economic opportunity for all those living in and around the affected areas. The city is testing an alternative demolition procedure that results in lower exposure risks and a savings of $20,000 per building. By reducing the costs and regulatory paperwork associated with each project, the city believes that more demolitions can be accomplished in a shorter amount of time.

Table 3: Benefits for Community Stakeholders

A cleaner local environment.
Direct community and stakeholder involvement in environmental decision-making and planning for facilities through collaborative teams.
Greater community input into local development and economic planning through issues such as site reuse and "smart growth."
Access to environmental data and reports that are in an easy-to-read format.
Opportunity to forge real and informed trust with the project sponsor.
Easier and faster access to companies' environmental information—via the Internet or local libraries, or directly from the facility.
Regularly scheduled forums for getting updates on environmental progress and company performance.
Better understanding of a local facility's operations, and of issues facing an industry as a whole.
Community enhancements, such as computer donations and improved landscaping in project buffer zones.

Project XL is providing communities with opportunities to identify the approaches that work most effectively for them and to build on or establish constructive relationships with facilities that impact the local environment and quality of life. The results will increase the number of tools and approaches that other facilities and communities can use in addressing priority problems, build capacity for problem-solving at the local level, and reaffirm the importance of public involvement in environmental decision making.

Project Status and Results

The section that follows summarizes objectives and results for all 51 projects with signed FPAs. The results are based on data collected between August and November 2001, and they are presented alphabetically by project sponsor. The projects are also sorted thematically—by sector, location, and relevant statute—in the index (on page iv).

- Andersen Corporation—Bayport, Minnesota
- Anne Arundel County Bioreactor—Severn, Maryland
- Atlantic Steel Site, Jacoby Development Corporation—Atlanta, Georgia
- Autoliv ASP, Inc.—Promontory, Utah
- Buncombe County Bioreactor—Buncombe County, North Carolina
- Chicago Regional Air Quality and Economic Development Strategy—Chicago, Illinois
- City of Albuquerque—Albuquerque, New Mexico
- City of Columbus—Columbus, Ohio
- City of Denton—Denton, Texas
- City of Fort Worth—Fort Worth, Texas
- Clermont County—Clermont County, Ohio
- Crompton Corporation Sistersville Facility (formerly Witco)—Sistersville, West Virginia
- Department of Defense Elmendorf Air Force Base—Anchorage, Alaska
- Department of Defense Naval Station Mayport—Jacksonville, Florida
- Department of Defense Puget Sound Naval Shipyard—Bremerton, Washington
- Department of Defense Vandenberg Air Force Base—Santa Barbara County, California
- Eastman Kodak Corporation—Rochester, New York; Windsor, Colorado; Peabody, Massachusetts; and White City, Oregon
- ExxonMobil Corporation—Fairmont, West Virginia
- Georgia-Pacific Corporation—Big Island, Virginia
- HADCO Corporation *(project to be closed out)* — Derry and Hudson, New Hampshire; Owego, New York
- Imation Corporation—Camarillo, California
- Intel Corporation—Chandler, Arizona
- International Business Machines East Fishkill Facility—East Fishkill, New York
- International Business Machines Semiconductor Manufacturing Facility—Essex Junction, Vermont
- International Paper Effluent Improvements—Jay, Maine
- International Paper Predictive Emissions Monitoring—Jay, Maine
- Jack M. Berry Corporation *(project closed out)*—LaBelle, Florida
- Labs21—Nationwide
- Lead Safe Boston—Boston, Massachusetts
- Louisville and Jefferson County Metropolitan Sewer District—Louisville and Jefferson County, Kentucky
- Lucent Corporation—Allentown and Reading Pennsylvania; Orlando, Florida
- Massachusetts Department of Environmental Protection Environmental Results Program—Commonwealth of Massachusetts
- Merck & Company, Inc.—Elkton, Virginia
- Metropolitan Water Reclamation District of Great Chicago—Chicago, Illinois
- Molex Incorporated *(project completed)*—Lincoln, Nebraska

- Narragansett Bay Commission—Providence, Rhode Island
- National Aeronautics and Space Administration White Sands Test Facility—Las Cruces, New Mexico
- New England Universities' Laboratories—Boston College, University of Massachusetts-Boston, University of Vermont
- New Jersey Department of Environmental Protection Gold Track Program—State of New Jersey
- New York State Department of Environmental Conservation Coal Remining and Reclamation Project—State of New York
- Ortho-McNeil Pharmaceutical Company—Spring House, Pennsylvania
- Pennsylvania Department of Environmental Protection Coal Remining and Reclamation Project—Commonwealth of Pennsylvania
- PPG Industries, Inc.—Pittsburgh, Pennsylvania
- Progressive Auto Insurance Company—State of Texas
- Steele County, Steele County, MN
- United Egg Producers—Nationwide
- U.S. Postal Service Denver—Denver, Colorado
- Waste Management, Inc., Virginia Landfills Bioreactors—King George and Amelia Counties, Virginia
- Weyerhaeuser Company, Flint River Operation—Oglethorpe, Georgia
- Yolo County Bioreactor—Yolo County, California

The following format is used to provide a full and consistent description of each project.

Background: Who is the project sponsor? What is the main experiment of the pilot project? What is the flexibility that is given to the project sponsor by the regulatory agencies (federal, state, tribal, and local)? In addition to the main experiment, what other innovations are key components of the pilot project? What is the expected superior environment performance of this project?

Progress in Meeting Commitments: What is the progress in meeting the overall commitments by the project sponsor and regulatory agencies that were agreed to and specified in the FPA?

Benefits for the Environment: Based on the project's progress, what has been the actual benefit or improvement to the local environment?

Benefits for Stakeholders: What benefits have the local community and general public received through project implementation?

Benefits for the Project Sponsor: What cost savings or other benefits have the project sponsor gained?

Information Resources: What are the sources of information for this project's summary?

Appendix A: "Information Sources and Methodology" describes the information sources and methodologies used in collecting data for each project.

Appendix B: "Focus Group Highlights" contains information collected from focus group sessions conducted for thirteen of the projects.

Appendix C: "Glossary" provides a glossary of terms used throughout this report.

For more information about Project XL and the individual projects, go to EPA's Web site at *http://www.epa.gov/projectxl*.