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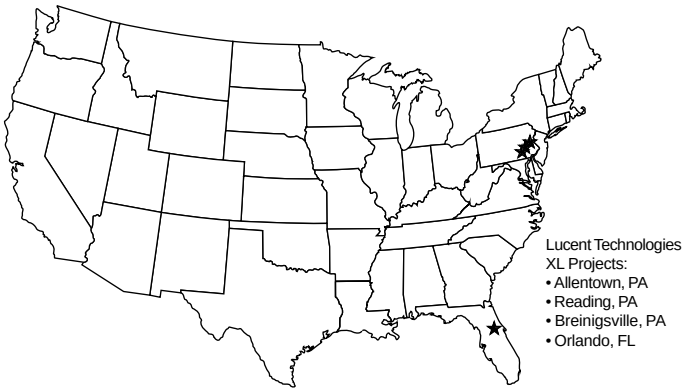
Project XL Progress Report
Lucent Technologies

On March 16, 1995, the Clinton Administration announced a portfolio of reinvention initiatives to be implemented by the U.S... Environmental Protection Agency (EPA) as a part of its efforts to achieve greater public health and environmental protection at a more reasonable cost. Through Project XL, which stands for eXcellence and Leadership, EPA enters into specific project agreements with public or private sector sponsors to test regulatory, policy, and procedural alternatives that will produce data and experiences to help the Agency make improvements in the current system of environmental protection. The goal of Project XL is to implement 50 projects that will test ways of producing superior environmental performance with improved economic efficiencies, while increasing public participation through active stakeholder processes. As of October 1999, 15 XL projects are in the implementation phase and 35 XL projects are under development. EPA Project XL Progress Reports provide overviews of the status of XL projects that are implementing Final Project Agreements (FPAs). The progress reports are available on the Internet via EPA's Project XL web site at http://www.epa.gov/Project XL. Or, hard copies may be obtained by contacting the Office of Reinvention's Project XL general information number at (202) 260-7434. Additional information on Project XL is available on the web site or by contacting the general information number.

Background

The Microelectronics Group of Lucent Technologies, Inc. (Lucent), designs and manufactures integrated circuits and other electronic components for the computer and communications industries. Lucent has been operating an Environmental Management System (EMS) since April 1997. Building upon this effort, Lucent is now striving to demonstrate that use of a third-party certified ISO 14001 EMS is an effective vehicle for determining and managing regulatory flexibility, while achieving multi-media superior environmental performance at all U.S.-based Lucent facilities. This XL project will be implemented in a phased approach over a 5 year period through site-specific demonstration projects at Lucent facilities in Allentown, PA; Reading, PA; Breinigsville, PA; and Orlando, FL.



Major Milestones

October 30, 1995
Lucent XL Proposal Submitted

August 19, 1998
Final Project Agreement Signed

April 2001
In-depth Progress Analysis

2003
Final FPA Commitments to be Met

The Lucent XL Project has six specific objectives.

- Identify the characteristics of a high-quality EMS that achieves superior performance;
- Evaluate whether the ongoing operation of a high-quality EMS can achieve superior environmental performance in both regulated and nonregulated areas and can drive environmental management toward continuous improvement;
- Test concepts regarding the benefits of the EMS and develop indicators to measure them;
- Determine if a high-quality EMS can be the basis for an integrated approach, embodied in a single document governing environmental management in all media at Lucent facilities, that achieves superior environmental performance exceeding the requirements of existing statutes and regulations;
- Implement facility-specific regulatory flexibility demonstration projects that will lead to superior environmental performance; and
- Integrate regulating agencies into the EMS management process.

The Microelectronics EMS is managed by four main components.

- Identifying and determining the significance, or priority, of "Environmental Aspects": those environmentally related characteristics of the Facility's operations, products, and services (the inputs such as raw materials, water, energy, and chemicals; and outputs such as products, emissions, discharges, and wastes);
- Identifying environmental "Objectives," which represent what Lucent seeks to achieve through its EMS in addressing the management of its significant Environmental Aspects;
- Identifying "Targets," the programs that define how the Objectives will be achieved over time; and
- Continually monitoring and measuring performance toward implementing its Targets and achieving the Objectives.

The Experiment

The Lucent project will test whether use of a high-quality EMS will create a more efficient, more transparent, more easily understandable, and more flexible system which not only meets the requirements of existing statutes and regulations, but also achieves superior environmental performance. The project will also use the unique strategy of integrating regulators into the EMS process to set environmental goals and to track performance.

The Flexibility

Lucent aims to operate an EMS to manage its environmental impacts for all media at all sites that achieves environmental performance superior to that required by its current permits. In return, EPA will allow Lucent to use the EMS as an alternative means to meet the objectives of the compliance, reporting, monitoring, modification, and reapplication requirements of the current permits. The statutory programs, and the EPA offices administering the programs, that affect the Lucent XL project are

- Clean Air Act (CAA) programs administered by EPA's Office of Air Quality Planning and Standards;
- Clean Water Act (CWA) programs administered by EPA's Office of Wastewater Management and EPA's Office of Wetlands, Oceans, and Watersheds;
- Resource Conservation and Recovery Act (RCRA) programs administered by EPA's Office of Solid Waste; and

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- Pollution Prevention Act (PPA) programs administered by EPA's Office of Prevention, Pesticides, and Toxic Substances.

The EMS will provide a vehicle for determining and managing the following regulatory flexibilities.

Permitting. Consolidation over time of all Federal and state permits (for all media) for domestic facilities into a single Lucent-wide multi-media permit to be based on Objectives and Targets set jointly each year by the company and regulators. This would result in a *de facto* annual review of the companywide, multi-media permit, rather than the current system of multiyear renewals of individual permits.

Permit Modification. Development of a streamlined process for identifying and incorporating new regulatory flexibility approaches.

Reporting. Simplification and consolidation of reporting requirements businesswide. This also would involve making requirements consistent throughout Lucent facilities and reshaping some requirements to coordinate with other EPA efforts, such as the Center for Environmental Information and Statistics.

The "umbrella" FPA signed on August 19, 1998, provides an overarching framework to govern the XL project across Lucent's U.S.-based facilities. Lucent also will implement site-specific regulatory flexibility demonstration projects at individual facilities. Each facility requesting flexibility under the XL Project will develop a "site-specific addendum" to the umbrella FPA. The Allentown facility will be the location of the first site-specific demonstration project. The Allentown addendum currently is being negotiated. As successes are generated at Allentown, site-specific projects will be developed at the other facilities in Breinigsville, PA; Reading, PA; and Orlando, FL.

Any site-specific regulatory flexibility projects established under the XL project would be allowed to continue beyond the date of FPA termination as long as the continuation is agreed to in the site-specific addenda. Any changes made to regulatory requirements described in site-specific addenda will be made in accordance with EPA's regulatory procedures. Once the changes are adopted, the new requirements will be fully enforceable.

To facilitate understanding and access by all stakeholders, the significant Environmental Aspects, Objectives, and Targets will be consolidated into one matrix. The matrix eventually will become the heart of Lucent's governing environmental document, containing performance measurements and accountability information. The matrix also will be used to transition from a medium-specific regulatory system, governed by individual permits, to a holistic multi-media management system. The building blocks for the governing environmental management matrix will be site-specific matrices developed for (potentially) all U.S.-based Lucent facilities as part of the regulatory flexibility demonstration projects. The site-specific matrices will be published in the site-specific addenda.

Promoting Innovation and System Change

Project XL provides EPA opportunities to test and implement approaches that protect the environment and advance collaboration with stakeholders. EPA is continually identifying specific ways in which XL projects are helping to promote innovation and system change. The innovations and system changes emerging from the Lucent XL project are described below.

Developing a Framework for Consolidated Multi-media Permitting. The Lucent project strives to develop site-specific flexibilities that would lead to superior environmental performance and improved environmental management at each Lucent facility. The ultimate goal is to use the EMS as a platform from which the company can, over time, consolidate all Federal and state permits for its domestic facilities into a single companywide multi-media permit. The Lucent project is testing sectorwide applications of EMS concepts

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using a multifacility corporate model. This experiment will affect EPA's efforts under its Sector-Based Action Plan which seeks to incorporate sector approaches into core Agency functions. EPA's Federal Register Notice on EMSs states that it is critical to measure any change in a facility's environmental performance that might be attributable to implementation of an EMS. Project XL can collect information on types, amounts, and properties of regulated and nonregulated pollutants that are reduced as a result of an EMS. In particular, XL will be able to provide this information on a multifacility basis.

Institutionalizing Regulator Participation in Setting Environmental Management System (EMS) Annual Goals and Targets. The integration of regulator participation into the normal operation of an EMS can enhance efficiency and improve environmental progress. Regulators will participate in identifying Environmental Aspects; establishing Objectives, Targets, and long-term strategies; continually improving the EMS; developing creative mechanisms to seek out current problems or past inadequacies; and streamlining the decisionmaking process leading to flexibilities. Involving regulators in this EMS approach would result in a *de facto* annual review of the permit, eliminating multiyear renewals of individual permits. The EMS Federal Register Notice also states that Federal and state regulators are interested in understanding the involvement of local communities and other stakeholders in the EMS process. The Lucent project can collect data to assess the amount and degree of stakeholder and regulator participation in both the development and implementation of an organization's EMS, and the effect that participation has on the public credibility of the facility's EMS implementation.

Project Commitment Summary

This table and the environmental performance section that follows summarize progress in meeting commitments described in the FPA for Lucent.

Commitment	Status
Use the EMS to Develop a Governing Environmental Management Matrix	
Actively involve stakeholders in identifying significant Environmental Aspects and in monitoring progress toward performance objectives.	Lucent has established a local environmental advisory group, composed of local environmental organizations, community groups, employees and other interested citizens, at each of its major manufacturing facilities.
Identify and manage a full range of significant Environmental Aspects, regulated and nonregulated.	In progress.
Create measurable performance Objectives for significant Environmental Aspects and a system for tracking progress toward these Objectives.	In progress.
Perform an in-depth evaluation of progress towards attainment of EMS Objectives and Targets associated with all demonstration projects and the goals of the umbrella FPA.	To be conducted in April 2001.
Integrate critical information regarding significant Environmental Aspects and performance goals into a single companywide matrix that serves as the core of a single, governing environmental document.	To be done by 2003.

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Commitment	Status
Develop Facility-Specific Regulatory Flexibility Demonstration Project at Allentown Facility	
Agree on facility-level superior environmental performance criteria and flexibility as the basis for a site-specific addendum.	In negotiation.
Develop an addendum that describes the demonstration project; the specific regulations, policies, guidance, or processes from which the facility plans to deviate (and alternative requirements); the legal mechanisms necessary to implement the project; and the superior environmental performance to be achieved.	In negotiation.
Finalize the addendum based on public notice and comment guidelines.	Not yet applicable.
Prepare quarterly reports and an annual review of the site-specific project.	Not yet applicable.
Determine the transferability of site-specific flexibility projects to other Lucent facilities and to the broader regulated community.	Not yet applicable.
Test Concepts Regarding the Benefits of the EMS	
EMS will drive continuous environmental improvement and deliver performance beyond law and regulation.	Concept to be tested during site-specific demonstrations.
EMS will improve compliance.	Concept to be tested during site-specific demonstrations.
EMS will integrate pollution prevention into normal business processes to foster technology improvements and transferability.	Concept to be tested during site-specific demonstrations.
EMS will integrate public concerns into normal business processes.	Concept to be tested during site-specific demonstrations.
EMS will provide a process for implementing regulatory flexibilities/efficiencies in a manner that results in superior environmental performance.	Concept to be tested during site-specific demonstrations.
EMS will create indicators to evaluate the cost savings or competitive efficiencies associated with regulatory flexibilities.	Concept to be tested during site-specific demonstrations.
EMS will allow new regulations to be more efficiently and less contentiously integrated into business operations.	Concept to be tested during site-specific demonstrations.

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Commitment	Status
Test Concepts Regarding the Benefits of the EMS	
EMS will foster transferability of sound environmental management practices.	Concept to be tested during site-specific demonstrations.
EMS will make environmental management practices consistent across business, geographical, and political boundaries, in order to address environmental justice issues.	Concept to be tested during site-specific demonstrations.
EMS will incorporate employee disclosure and protection mechanisms into environmental management more effectively than do current approaches.	Concept to be tested during site-specific demonstrations.
EMS will create reporting programs that are more understandable, transparent, up-to-date, comprehensive, and less costly than those currently required.	Concept to be tested during site-specific demonstrations.
EMS will identify enforcement approaches that are less contentious and more efficient for regulators and regulated entities.	Concept to be tested during site-specific demonstrations.
EMS will align manager and employee rewards and incentives with sound environmental practice.	Concept to be tested during site-specific demonstrations.
EMS will facilitate the development across all media of *de minimis* thresholds below which regulation may not be necessary.	Concept to be tested during site-specific demonstrations.
Third-party certification of EMS will improve its performance and quality.	Concept to be tested during site-specific demonstrations.
Integrate Regulatory Agencies into the EMS Process	
Include agencies in the continual improvement of the EMS both at the facility level and businesswide.	Concept to be tested during site-specific demonstrations.
Include regulators in the identification of Environmental Aspects, and in the establishment of Objectives, Targets and long-term strategies.	Concept to be tested during site-specific demonstrations.
Develop creative mechanisms to seek out current problems or past inadequacies.	Concept to be tested during site-specific demonstrations.
Give regulators an opportunity to provide input for the demonstration projects, through the setting of Targets and Objectives under the EMS.	Concept to be tested during site-specific demonstrations.
Conduct joint review of progress toward stated Objectives and Targets relevant to the demonstration projects.	To be conducted April 2001.

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Environmental Performance

This section summarizes progress in meeting the environmental performance described in the FPA for Lucent. The goals and baselines for specific performance objectives will be developed in each site-specific addendum. No addenda have been developed yet. The Allentown addendum is now being negotiated. The umbrella FPA lists the Environmental Aspects —water consumption, wastewater, sludge, and air emissions— that Lucent predicts may be part of the Allentown demonstration project. However, these parameters may change as the Allentown addendum is finalized.

Stakeholder Participation

To ensure active stakeholder involvement in determining significant Environmental Aspects and in setting performance goals, Lucent established a Local Environmental Advisory Group (LEAG), composed of local environmental organizations, community groups, employees, and other interested citizens, at each of its major manufacturing facilities. At Lucent's request, during the formative phases of the corporate level EMS, the Environmental Law Institute (an independent research and education center) voluntarily provided advice and guidance during development of the public participation development document. This became the basis for the Allentown and other facility LEAGs.

The Allentown LEAG reviewed and commented on the umbrella FPA and will be the key stakeholder participant in the development and implementation of the Allentown demonstration project. The LEAG was initiated at the Allentown facility with an invitation published in local newspapers in August 1996. The eight LEAG meetings in 1996 and 1997 included two with EPA and Pennsylvania DEP representatives. In December 1997, the LEAG provided input on the draft umbrella FPA and, as a result, the FPA was reorganized and made more readable for the lay person. Following the signing of the FPA in August 1998, Lucent staff and LEAG members met with EPA and Pennsylvania DEP to address ongoing EMS issues. As a result of these meetings, the environmental agencies agreed to present their views to Lucent's Environmental Action Team during EMS strategic planning sessions. In addition, Lucent agreed to form a reporting subcommittee to enhance its communication of environmental performance information with the public, EPA, Pennsylvania DEP, and LEAG members. In January 1999, LEAG members discussed the need to create a common understanding among stakeholders and emphasized the importance to the community of having Lucent strive for continual pollution prevention by reducing the generation of waste from its operations while the company explores opportunities to expand manufacturing at the facility. In June 1998, a LEAG member spoke about the need for participants to work together to make Project XL successful. In September 1999, Lucent presented a status report on the project, including topics for future discussion with EPA.

Six-Month Outlook

Over the next six months, Lucent will focus on developing the site-specific addendum for the Allentown facility.

Project Contacts

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- Tom Maslany, U.S. EPA, Region 3, (215) 814-2050.
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- Mary Lou Barton, Pennsylvania DEP, (717) 787-7060.

Information Sources

The information sources used to develop this report include (1) the October 30, 1995, Lucent FPA; and (2) individual contacts with direct stakeholders.

Glossary

Baseline: The measure by which future environmental performance can be compared.

Center for Environmental Information and Statistics: The U.S. EPA's one-stop source for information on environmental quality, status, and trends. Located in EPA headquarters in Washington, DC.

Clean Air Act (CAA): The CAA is the comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment.

Clean Water Act (CWA): The CWA sets the basic structure for regulating discharges of pollutants to waters of the United States. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a National Pollutant Discharge Elimination System (NPDES) permit is obtained under the Act.

Effluent: Treated or untreated wastewater that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

Environmental Justice: Equal protection from environmental hazards for individuals, groups, or communities regardless of race, ethnicity, or economic status. This applies to the development, implementation, and enforcement of environmental laws, regulations, and policies, and implies that no population of people should be forced to shoulder a disproportionate share of negative environmental impacts from pollution or environmental hazard due to a lack of political or economic strength.

Environmental Management System (EMS): An EMS allows an organization to assess and control the environmental impact of its activities, products, or services. According to the International Organization for Standardization, there are six key elements of an EMS: (1) an environmental policy (an organization's statement of its intentions and commitment to environmental performance); (2) planning (the analyses by the organization of the environmental impact of its operations); (3) implementation and operation (the development and putting into practice of processes that will bring about environmental goals and objectives); (4) checking and corrective action (monitoring and measurement of environmental indicators to ensure that goals and objectives are being met); (5) management review (review of the EMS by the organization's top management to ensure its continuing suitability, adequacy and effectiveness); and (6) continual improvement.

Final Project Agreement (FPA): The FPA outlines the details of an XL project and each party's commitments. The project's sponsors, EPA, State agencies, Tribal governments, other regulators, and direct participant stakeholders negotiate the FPA.

International Organization for Standardization (ISO) 14000: The ISO is a private-sector, international standards body that promotes the international harmonization and development of manufacturing, product, and communications standards. ISO 14000 is primarily concerned with "environmental management." The ISO

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14000 series sets out the methods that can be implemented in an organization to minimize harmful effects on the environment caused by pollution or natural-resource depletion.

ISO 14001: The ISO EMS Specification Document is assigned the document number 14001.

Media: Specific environments—air, water, soil—which are the subject of regulatory concern and activities.

Multi-media: Pertaining to several environmental media, such as air, water, and land.

National Pollutant Discharge Elimination System (NPDES): A provision of the CWA that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or where delegated, a Tribal government on an Indian reservation.

Pollution Prevention: Identifying, altering, or eliminating areas, processes, and activities that create excessive waste products or pollutants. Such activities, consistent with the Pollution Prevention Act (PPA) of 1990, are conducted across all EPA programs.

Resource Conservation and Recovery Act (RCRA): RCRA gives EPA the authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of nonhazardous wastes. RCRA enables EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. RCRA focuses only on active and future facilities and does not address abandoned sites.

Wastewater: The used water from a home, community, farm, or industry that contains dissolved or suspended matter.

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