1997 ENVIRONMENT, HEALTH AND SAFETY REPORT



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Looking Out For the Future

Lucent Technologies
Bell Labs Innovations

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LETTER FROM THE CHAIRMAN



Richard McGinn

We are in an industry that is changing almost daily. In order to be successful, we must execute with speed and quality, anticipate what our customers will want next, and be there with the right solutions before our competitors. The people of Lucent Technologies recognize that our future depends on our actions today.

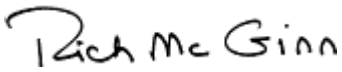
This forward-looking mindset, coupled with intense customer focus, gives us insight into what our customers envision for their businesses. One thing we know for certain is that our customers want for their children the same things we want for ours - a safe and clean environment. There is no doubt that our environmental, health and safety programs are important to our customers, shareowners, employees, and the communities where we operate.

We also know that continual improvement is the only way to remain successful through the next century. We have a proud heritage of environmental management and social responsibility, but we are not content to rest on past performance. We are building on this strong foundation, looking beyond the horizon, because it is the right thing to do for our customers, our shareowners and each other.

Our Values (Obsession with Serving Customers; Commitment to Business Excellence; Personal Accountability, Integrity and Candor; and Social Responsibility) guide our behavior as we strive to move our business forward within the context of environmentally sound practices. We rely on the talents and energy of our people, whose health and safety are necessary to sustain our innovation and productivity. We rely on partnerships with our suppliers and our customers to provide safe, energy-efficient goods and services that have minimal environmental impact throughout their lifecycles. In support of our shareowners, we strive to focus our environmental, health and safety (EH&S) program to manage costs effectively, and as well, to guide us in acting as responsible members of society.

We know that we must strive for sustainable

development to ensure the future availability of resources, and increasingly, we are designing for the environment just as we design for high performance, reliability and quality. Combining a focus on business excellence with a heightened environmental and safety awareness produces the kind of results of which we can all be proud, and positions us to be successful not just today, but in the future.



Richard A. McGinn
Chairman and Chief Executive Officer

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1997 ENVIRONMENT, HEALTH AND SAFETY REPORT

ENVIRONMENTAL, HEALTH AND SAFETY POLICY



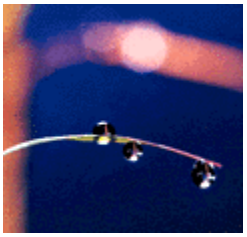
John D. Pittman
Vice President,
Chief Quality,
Environment,
Health and Safety
Officer

"We established our EH&S policy at Lucent's inception to address today's needs, but with a strong focus on ensuring that we are prepared to meet the future requirements of our customers, our employees and the communities where we operate. We believe that our EH&S policy is already meeting the initial test of time by positioning us to be in compliance with ever-evolving laws and regulations, wherever we operate.

"Additionally, the policy creates a context for building the capabilities we need to put in place to support an ever-changing marketplace. It directs us to be proactive in addressing EH&S issues and opportunities associated with market access, cost, and legal and customer requirements. Our experience shows that we achieve our best business results when EH&S is fully integrated into the way we run our business.

"Fulfilling the commitments outlined in the policy is the opportunity and responsibility of all Lucent employees."

Lucent Technologies is committed to protecting the environment and the health and safety of our people, our customers and the communities where we operate. Meeting this commitment is a primary management objective and the individual and collective responsibility of all Lucent employees worldwide. To that end, we shall:



> Comply with all applicable environmental, health and safety laws, regulations and Lucent's global EH&S standards.

> Establish management systems for environment, health and safety based on recognized standards, and set company-wide goals for continuous improvement.

>Integrate environment, health and safety into our business plans and decisions - including the design, production, distribution and support of our products and services.

> Ensure that our products are safe, and work with suppliers and customers to promote responsible use throughout their lifecycle.

> Reduce environmental impact and conserve natural resources by minimizing waste and emissions, reusing and recycling material, and responsibly managing energy use.

> Motivate and prepare all employees to take personal accountability for protecting the environment and creating a safe and healthy workplace.

> Be a leader in deploying and promoting innovative, cost-effective environmental, health and safety technologies and procedures both within and outside the company.

We will regularly review and improve this policy, communicate it to employees, and make it available to all stakeholders.

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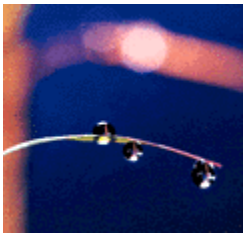

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ENVIRONMENT, HEALTH AND SAFETY GOALS



Richard H. Bennett, Jr.
Global EH&S
Vice President

"The EH&S Goals for the Year 2000 are the cornerstone for achieving a fully integrated, value-added EH&S organization. The goals are the means by which management and other stakeholders can gain insight into the Lucent EH&S community's efforts.

"Our partnership with Lucent's businesses focuses on progressing towards achieving our Year 2000 Goals and preparing for the future. In doing this, we are committed to staying at the forefront, sustaining our successes and gains, engaging all Lucent employees, and reflecting the innovation and continuous improvement for which Lucent strives."

By the year 2000 we will:

> Have in place EH&S management systems— based on recognized standards – for at least 95% of our products, services, operations and facilities.

> Reduce our lost workday accident rate by 30% as we move toward our long-term objective of zero on-the-job injuries.

>Develop and apply Design for Environment (DFE) criteria to produce competitive, environmentally preferable products and services.

> Improve the energy efficiency of our operations to avoid what would otherwise be the emission of at least 135,000 metric tons of greenhouse gases.

> Recycle at least 70% of our wastepaper.

At the same time, we will sustain the **successes and significant gains** already made in reducing manufacturing waste disposal and reportable air emissions as we add new operations and grow the business globally.

In support of these goals, we will **engage all Lucent employees** worldwide in addressing environmental, health and safety issues and **recognize their achievements** at work and in their communities through programs like Lucent's Environmental Heroes.

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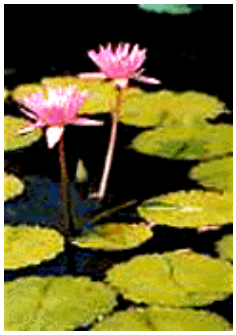
ENVIRONMENT, HEALTH AND SAFETY MANAGEMENT SYSTEMS



Lucent Technologies recognizes that protecting and preserving the environment and the health and safety of employees are key business imperatives for success in the 21st century. EH&S Management Systems are critical tools for ensuring not only compliance with existing regulations, but also continuous improvement in order to gain competitive advantage.

A management system is a set of policies, programs, procedures and processes by which an organization assures itself that its business practices comply with the requirements imposed by law, its customers, and its own EH&S Policy. EH&S Management Systems require that employees accept responsibility for environmental protection and employee safety and health in their daily work activities. To that end, these systems include procedures to identify potential impacts; set objectives and targets; establish training and programs to meet targets; review the programs; and report results to senior management to ensure improvement.

Environmental Management Systems

Environmental Management Systems require an organization to develop and implement an environmental policy that includes a commitment to continuous improvement; to have procedures in place to address regulatory compliance; and to set the tone for moving beyond compliance. This is accomplished by identifying improvement objectives in key areas and integrating them into business plans and processes. While a number of international environmental management system models exist, many Lucent units are conforming to ISO 14001, an internationally recognized standard, and have opted for independent third-party certification.

The following Lucent Technologies businesses and facilities have received ISO 14001 certifications: Microelectronics Group is certified in all of its manufacturing and design centers in four countries, plus Headquarters. Business Communications Systems (BCS) has achieved certification in all its Headquarters and Research and Development locations. Our Systems for Network Operators business has achieved ISO 14001 certification in 12 locations: Rouen, France; Huizen, Netherlands; Tres Cantos, Spain; Qingdao and Shanghai, China; Hsinchu, Taiwan; Bray, Ireland; Augsburg, Germany; Matamoros, Mexico; Omaha, Neb.; Mesquite, Tex.; and Mt. Olive, N.J. In addition, Bell Labs and Lucent Real Estate, the organization that operates most of Lucent's administrative locations, are working towards ISO 14001 certification.

Compliance with regulatory, legal and customer standards is the first requirement of EH&S in Lucent Technologies. Integrated environmental, health and safety audits are used to evaluate compliance with legal and company requirements and identify areas for improvement. The audit process ensures that adequate resources are dedicated to solving any problem, with a systematic correction applied consistent with Lucent's quality improvement principles. The audit program applies to both Lucent-owned locations and to joint ventures in which Lucent holds a majority interest or has operating control.

The Lucent Global EH&S center monitors EH&S performance throughout the business. It partners with EH&S officers in every operating unit. Together, they work on integrating EH&S goals into business and operational plans. As a global company, Lucent addresses the differing legal requirements in countries where it operates. In all locations, we audit for compliance with local laws and regulations as well as Lucent's own worldwide EH&S standards. Locations participating in audits report a high level of acceptance of the audit process – evidence that support for the environment, health and safety is part of the culture at Lucent Technologies.

Lucent is conducting environmental remediation at several of its own sites and is also involved as a potentially responsible party at a number of Superfund sites. These remediations are the result of activities that took place many years ago, when the environmental impact of the handling and use of certain materials was not well understood; the practices that gave rise to the need for these cleanups were lawful at the time. Lucent actively manages its operations to



" We believe strong environmental management is not only the responsible thing to do, but can also strengthen Lucent's competitive position. The same applies to health and safety. Here we work to create and maintain a safe work environment for our associates, enabling them to make Lucent a more competitive company. "

Ed Robinson,
BCS Environmental
Health and Safety Officer

prevent potentially harmful releases of materials to the environment.

Health & Safety Management Systems



"A top priority is to ensure that exectives have a clear understanding of the EH&S issues affecting their operations. We must also ensure that a complete network of EH&S professionals is available worldwide to help the executives act on their commitment to strong EH&S performance."

Nelson Marshall,
Manufacturing Environmental Health and Safety Officer

Health & Safety Management Systems are used to recognize and promote effective health and safety programs. Independent third-party verification processes, such as the U.S. Occupational Safety & Health Administration's (OSHA) Voluntary Protection Program (VPP), recognize locations that demonstrate exemplary employee health and safety programs implemented through cooperation among all levels of management, technical staff and occupational employees. To gain VPP status, management and employees must agree to operate and participate in an effective safety program that meets a set of criteria established by OSHA, above and beyond regulatory requirements. VPP requires employees to be actively and meaningfully involved in improving workplace health and safety.

VPP-participant locations are a select group of facilities that have designed and implemented exemplary health and safety programs. OSHA publicly recognizes these sites by awarding STAR or MERIT status. Lucent has seven manufacturing sites with VPP STAR status (Little Rock, Ark.; Orlando, Fla.; Norcross, Ga.; Shreveport, La.; Omaha, Neb.; Oklahoma City, Okla.; Allentown and Breinigsville, Penn.), and two with MERIT status (Reading, Penn.; North Andover, Mass.). Approximately 24,000 workers are employed at these participating facilities. Efforts are currently underway at six Bell Labs locations to gain VPP status.

At Lucent Technologies, we know that everything we do today will have repercussions tomorrow. Our EH&S Management Systems are structured to lead us to a successful future.

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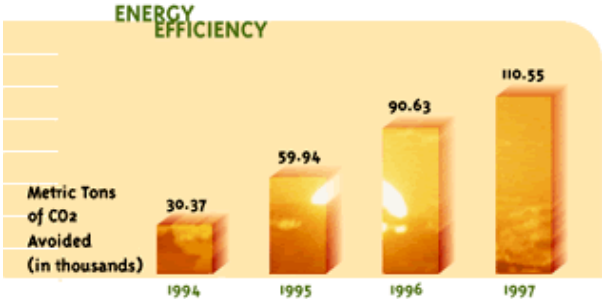
Energy Efficiency



Lucent's goal is to recycle a minimum of 70 percent of its waste paper and cardboard by the year 2000. Location reporting for 1997 indicates that the goal has been achieved.

Improving energy efficiency is one area where the linkage between what is good for the environment and what is good for the business is absolutely clear – greater efficiency translates to cost savings that go right to the bottom line. Energy use worldwide is the single largest contributor to the buildup of greenhouse gases, primarily carbon dioxide, in the atmosphere. These are the materials that trap heat in the atmosphere and may lead to global warming. Each Lucent business group is responsible for its portion of the progress toward the overall goal to avoid at least 135,000 metric tons of greenhouse gases per year by the year 2000.

As a result of the efforts of energy management teams throughout Lucent's global operations, by year-end 1997 we avoided 110,553 metric tons of carbon dioxide, up from 90,630 metric tons in 1996 – a 22 percent imporvment. This translates to $12.5 million in cost savings and 1,043,389 million British Thermal Units (MBtu).

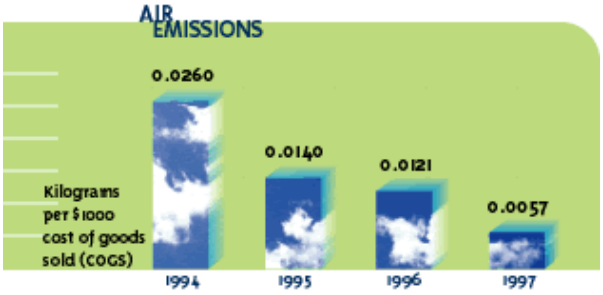


Air and Water Management

Lucent Technologies has played a pioneering role in eliminating chlorofluorocarbons (CFCs) from electronic systems manufacture. Before their role in depleting the earth's ozone layer was identified, CFCs were used extensively in electronics manufacturing as solvents and cleaning agents. In 1987, Lucent Technologies (then part of AT&T) targeted CFCs for

elimination from manufacturing. With the help of innovative alternatives from Bell Labs, including orange-peel derivatives and frozen carbon dioxide (pelletized dry ice), Lucent eliminated CFCs from its manufacturing processes while continuing to meet manufacturing objectives. Last year, we reported that we had reduced reportable air emissions by 96 percent from 1987 to 1994. We are sustaining the gains we've made, and from 1994 to 1997, we reduced air emissions, indexed to production, by 78 percent. We continue to strive for air emissions reductions even as we continue to add operations and grow the business globally.

For sanitary and industrial wastewater discharges, Lucent Technologies has procedures to meet applicable local standards throughout the world. In addition, the company has established minimum standards of its own for wastewater discharges and in many instances, these standards exceed local requirements. In the area of water usage and conservation, Lucent's Microelectronics Group completed numerous water conservation projects in 1997 which reduced the need for more than 100 million gallons of water per year, and generated associated savings in chemicals and energy.



Recycling



Lucent's goal is to recycle a minimum of 70 percent of its waste paper and cardboard by the year 2000. Location reporting for 1997 indicates that the goal has been achieved. In 1998, we will be conducting waste analyses at selected facilities to identify additional opportunities to achieve further increases in recycling.

Lucent has paper recycling programs in many of

its facilities around the world. For example, the facility in Matamoros, Mexico, has combined its recycling program for office paper with an innovative use program. Paper is placed into three classes: unused, used on one side only and used on both sides. When office paper reaches the third class, it is collected, separated according to type and composition and recycled by a local recycler. Funds realized are donated to a local charity.

Other efforts are focused on using recyclable material in our products and packaging. At the Oklahoma City Works, engineers implemented a new design for 5ESS® Switching System frame packaging. The old packaging design required disposal, while the new design is completely recyclable. The new frame packaging design will help the Oklahoma City Works to avoid generating nearly 300 tons of landfill waste annually, while reducing the annual cost of disposal by $10,000. In addition, the new packaging is lighter – the old style weighed 18 pounds, while the new style weighs only 3 pounds. This makes the system easier for employees to handle and reduces transportation fees. The involved engineers are now working with their vendor to create packaging that is totally reusable, which will not only eliminate the need for recycling, but will result in additional cost savings.

As we approach the 21st century, Lucent Technologies is committed to incorporating practices, including design for environment, that reduce or eliminate waste generation at its source.

Waste Disposal



Lucent is exceeding its goal of maintaining total manufacturing waste disposed at the 1994 level, indexed to production. As we approach the 21st century, Lucent Technologies is committed to incorporating practices, including Design for Environment, that reduce or eliminate waste generation at its source. When waste cannot be totally eliminated, the hierarchy of desirable practices is: source reduction (most desirable), re-use, recycling, energy recovery, treatment and (least desirable) disposal.

The annual volume of non-hazardous waste disposed at off-company premises was reduced about two-thirds from 1987 to 1994, even with a significant increase in manufacturing output. Since 1994, non-hazardous waste disposal volume has remained constant at approximately two kilograms per $1000 cost of goods sold.

In 1997, Lucent reduced the amount of hazardous waste shipped off-site by 45 percent from 1996. Hazardous waste from Lucent locations goes to approved and permitted facilities for reclamation, treatment or other

disposition. We are working to reduce the total number of these facilities in order to enhance overall supplier management and oversight, while continuing to meet the needs of our growing, global business.

Many Lucent facilities have been innovative in reducing the generation and disposal of manufacturing wastes. The Atlanta Works generates a Process Glass waste stream that has been landfilled in the past. That waste stream is now sold for insulation, which will divert 100 tons of this waste from landfills in 1998.

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HEALTH AND SAFETY PROGRESS



A safe and healthy workforce is a key enabler for our success. By promoting well-being and rapid recovery, benefits accrue to both the company and the employee.

Guarding employees against illness or injury and helping them to recover quickly if they become ill or injured is a top priority at Lucent Technologies. A safe and healthy workforce is a key enabler for our success today and in the future. By promoting well-being and rapid recovery, benefits accrue to both the company and the employee. We have committed to reduce the Lost Workday Case Rate by 30 percent below the baseline 1996 rate by the year 2000. Lucent's reporting methodology in the United States uses the OSHA lost workday case-incidence rate criteria, a widely used industry standard. Similar reporting criteria have been established for our international locations. This is just a step toward our long-term objective of zero on-the-job injuries.

For 1997, our worldwide Lost Workday Case Rate was up from 0.81 per 100 workers in 1996, to 0.91 per 100 workers. In response to this increase, we are identifying opportunities for improvement and developing countermeasures to be implemented throughout the workforce. Based upon a review of existing data, we are currently working on the prevention of back injuries, ladder safety and fall protection.

In addition, we are engaging all employees in the improvement process through company-wide safety awareness efforts; strengthening the focus on safety performance as a business objective; and implementing Occupational Health and Safety Management Systems aimed at building a safety culture and infrastructure that is integrated with day-to-day operations.

Lucent suffered one OSHA-reportable fatality in its BCS business group during 1997. Even though fatalities are infrequent in Lucent's operations, we view them as extremely important events with both business and human implications. When a fatality occurs, senior leaders of the business conduct a detailed review and, where circumstances warrant, immediately implement preventive measures. These preventive measures are then deployed across all of Lucent's global operations.

Lucent Technologies is committed to the total well-being of our employees. In addition to 22

Health Services clinics dedicated to keeping employees productive by assisting them with illness and injury, whether occupational or non-occupational in origin, Lucent is pursuing a program of making fitness and wellness services available to employees. The objective is twofold: first, to improve general health, productivity and well-being through prevention and wellness programs; and second, for rehabilitation of injuries and illnesses when they do occur, thus minimizing health care costs and work time lost due to disability.

Lucent also offers Employee Assistance Counseling Services to employees and their families to address personal and work-related issues. Lucent's Health Services clinics sponsor wellness and prevention activities, including smoking-cessation, nutritional management and stress management programs.

At Lucent, employees know that health and safety awareness and improvement are everyone's responsibility. Our Merrimack Valley Works in North Andover, Mass., is one of many Lucent locations where cross-functional teams of employees have come together to address health and safety issues. Merrimack Valley Works has implemented an Ergonomics 2000 Initiative with the goal of reducing musculoskeletal disorders 30 percent by the year 2000. In line with corporate goals, the Lost Workday Case Rate will be used as a metric and 1996 will be used as the base year. A training program has been developed to train OSHA Voluntary Protection Program (VPP) teams to recognize, evaluate and control ergonomic hazards in their work areas. Leadership encourages all employees to participate. Teams meet regularly after the training, and currently have several ongoing projects. These include the installation of a counterbalanced mechanical assist device for lifting heavy panels, and a modification of conveyor lines to reduce lifting and reaching in circuit pack operations.

Product Safety

Lucent Technologies' business is heavily based on wireless and fiber optics communications technology. Lucent's product safety program evaluates the wireless and laser technologies we use to ensure the safe use of electromagnetic energy and efficient use of both spectrum and power, as well as evaluating products for compliance with applicable, recognized product safety standards.

We employ not only environmental engineers and industrial hygienists, but also ionizing radiation

and laser safety specialists; toxicologists; ergonomists; and cellular and product safety experts. These experts work closely with product designers and factory representatives to help ensure that all of Lucent's products meet applicable safety standards. A product safety seminar to discuss emerging issues and share best practices is held annually. In addition, Bell Labs provides radio-frequency environmental impact support to customers who are establishing wireless base stations to serve their users' fast-growing demand for mobile communications.

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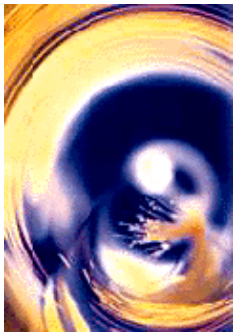
DESIGN FOR ENVIRONMENT



By focusing in advance on the environmental impact of each product's manufacture, use and disposition, we can design products that can be manufactured cleanly, that use minimal energy, and that contain re-usable or recyclable components.

Lucent Technologies knows that Design for Environment (DFE) is a key in distinguishing our processes, products and services. We have established a cross-functional DFE team to implement the changes necessary to support our vision of being a responsible company that fully integrates lifecycle consequences into each of its business decisions and activities. We have also established a Product Lifecycle Team to facilitate company-wide minimization of potential cost and liability associated with equipment disposal, electronic and contaminated scrap, asset recovery and product re-use.

By focusing in advance on the environmental impact of each product's manufacture, use and disposition, we can design products that can be manufactured with processes that minimize environmental impact, that use less energy, and that contain re-usable or recyclable components. DFE can also provide Lucent and its customers competitive advantage and new business opportunities, while overcoming market barriers.

To reach our goal, we are leveraging the expertise of academia, customers, suppliers, industry associations and government agencies – as well as our own people – to develop DFE capabilities, tools, methodologies, criteria and strategies. We are engaging our own product designers by providing tutorials, workshops, consultation and joint design reviews. Through partnerships with Bell Labs and Lucent's Engineering Research Center, the DFE Team has developed product, process and facility assessment tools and methodologies to identify areas for improvement.

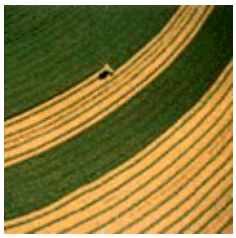


In December, 1997, Lucent's BCS business received ISO 14001 certification for its environmental management system developed to cover research and development operations and activities associated with product design. A significant and unique factor associated with the BCS certification is that it integrates DFE into its product realization process.

The DFE component of the certification means that BCS designers will routinely consider environmentally responsible characteristics in

their product designs, and that these considerations are now part of the required (and audited) product development process.

While BCS is a model for DFE at Lucent, our other businesses are also moving in this direction. For example, Systems for Network Operators has implemented a more recyclable shipping container design for our 5ESS® Switching System, and has dramatically redesigned the 5ESS's Access Interface Unit to require much less floor space for more efficient use of raw materials and significantly less energy consumption.



Also in 1997, the Lucent Technologies Foundation and the National Science Foundation (NSF) awarded 18 grants to researchers across the United States to advance the emerging field of Industrial Ecology and to encourage businesses to integrate pollution prevention practices into their day-to-day operations. Industrial Ecology provides a systematic approach to achieve complete pollution prevention by eliminating the root causes.

The NSF/Lucent Technologies Industrial Ecology Research Fellowships, each worth up to $50,000 per year for two years, will support an individual or group of researchers focusing on research or teaching to help industry understand and improve the potential environmental impact of products and manufacturing processes over their full lifecycle. The Industrial Ecology fellowships this year total $1.2 million for 13 new awards and five renewals.

Many companies look at their existing products with an eye toward improving them. At Lucent, we are preparing for the future by implementing quality-based systems to consider the environment each time we design new products and processes.

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James McKenna, National Fleet Manager, inspects an electric car at the Morristown Train Station

Electric Cars: The Key To The Future — Project: Power Commute

Every day for the next three years, seven Lucent **Bell Labs** employees will take a train to the Morristown, N.J., train station, and then take electric cars the few remaining miles to their offices in Whippany, N.J. This groundbreaking pilot project is designed to help reduce traffic congestion. Project: Power Commute is the largest scheduled electric station project in the Northeast United States, and is sponsored by the New Jersey Dept. of Transportation, NJ Transit, and MC RIDES Commuter Services. The participating Lucent employees say they enjoy driving these clean, quiet, low-maintenance electric cars, which have reserved parking spaces with charging boxes at both the train station and the Whippany facility. The cars are made available to other employees during the day for work-related activities such as deliveries and transportation to meetings.

Microelectronics Group Forms Local Environmental Advisory Groups

This year, Lucent's **Microelectronics Group** became one of the first multi-site businesses in the world to institute a single environmental management system, certified to the ISO 14001 international standard. In support of its environmental management system and certification, Microelectronics has formed Local Environmental Advisory Groups (LEAGs) at all of its major manufacturing facilities worldwide.

The purpose of a LEAG is to gather a diverse group of community representatives and facility personnel to exchange ideas and respond to concerns regarding environmental activities at the facility. The group provides the opportunity for the community to learn more about the facility and its operations; acts as a forum to identify and prioritize community interests and concerns relating to significant environmental aspects of the site; reviews Lucent's objectives and targets for improving the facility's environmental performance and offers advice

and recommendations for continually improving the facility's environmental management system. At some U.S. sites, LEAGs will also provide involvement for any regulatory flexibility proposed under the U.S. Environmental Protection Agency Project XL.

LEAG members are intended to represent a broad range of interests from the local community. Members make an initial one-year commitment, with the opportunity to extend membership for an additional one or two years. Most meetings are open to the public.

Omaha Works' Ergonomic Sub-Committee

The ergonomic sub-committee in this **Systems for Network Operators** facility was originally created in 1995 as an offshoot of the Works' Union/ Management Safety Committee. It was the sub-committee's role to monitor the effectiveness of the Works' ergonomic program and assist in implementing early detection and surveillance strategies. Made up of both represented and non-represented employees, the group has received extensive training in ergonomic principles through local ergonomic specialist Paul Pickrel and had twenty hours of high level training through the University of Nebraska-Lincoln.

Late last year, the committee expanded from six to twelve members, linked itself more closely with the Union/Management Safety Committee, and advertised its services to the safety teams throughout the factory. Additional ergonomic training was provided, enabling the team to better investigate, track and evaluate its projects.

Germanium Recovery

Lucent's **Bell Labs** has invented a germanium-recovery process that is being used at the Atlanta Works. This process improves the recovery and recycling of germanium, a natural resource used in optical-fiber manufacturing. More than 35 percent of today's global industrial consumption of germanium is used in the manufacture of optical-fiber, a product whose use has skyrocketed in the last decade. The use of this new recovery process will save Lucent millions of dollars a year, and bring our germanium recovery and re-use rate to nearly 80 percent.

Montgomery Works Clean-Up

In August, **Business Communications Systems** began demolition of the 50-year-old AT&T/Western Electric Montgomery Works in Kendall County, Illinois. The plant manufactured munitions during World War II and then became a wallpaper factory before AT&T purchased it as a manufacturing site for electronic components. BCS began working proactively with the Illinois Environmental Protection Agency as soon as the decision to close the plant was made in 1995. With their help, we determined that there had been some contamination at the 44-acre site. Over the next several years, Lucent will be working to clean up the site, treating all contaminated soils on-site. We have placed volumes of reports about the project at the Oswego Public Library for review by any local residents interested in learning more about the cleanup, which began in November.



Clean-up begins

Lucent Technologies Bell Labs Innovations

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Working in partnership with the Denver Parks and Recreation Department, more than 200 Lucent Pioneers and employees from the Denver area cleaned trails and painted picnic tables at Red Rocks Park. Volunteers performed jobs the parks department estimated to be worth $90,000.

Environmental Heroes

The Lucent Technologies Environmental Heroes Award program recognizes those who lead by example. Our second annual Award program yielded 70 entries and 15 winning projects, ranging from environmental improvements in manufacturing processes to promotion of farmland preservation. The winning projects were selected by a consortium of judges with a global perspective assembled by Renew America, a nonprofit environmental awareness organization in Washington, D.C.

1> Bicycle Commuting Program— "Work to Live, Live to Bike, Bike to Work." That's the motto of Peter Chen, an employee in Lisle, Illinois, who has coordinated local participation in an annual Bike-to-Work Week since 1992, and provides encouragement and support for bicycle commuting all year round. Chen has mapped out bicycle routes from several areas around the Lisle campus and manages an e-mail distribution list and a Web page to keep bicycle commuters informed about cycling issues. In recent years, the program has expanded to include other companies and government agencies in the area. Last year's Bike-to-Work Week resulted in more than 1,000 miles of bicycle commuting.

2> Project Wild - Little Alamance Creek Nature Trail—Project Wild is the name of a half-mile nature trail that follows Little Alamance Creek, located on the back of Lucent's Guilford Center complex in McLeansville, North Carolina. Lucent and the North Carolina Wildlife Commission began the trail's construction in 1995, and many local educators have used it as an outdoor learning facility to introduce students to environmental responsibility. Lucent employees and volunteers cleared paths for trails, planted more than 500 native flowers and shrubs, and constructed a wood shelter and an amphitheater for on-site classes. The project has laid the groundwork for future generations to understand and respect their environment.

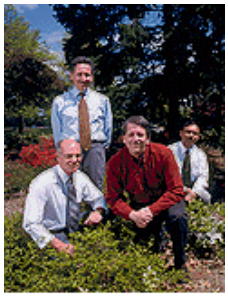
3> Yukon Recycles Environmental Conservation—Yukon Recycles is an all-volunteer recycling operation in Yukon, Oklahoma. **Aubrey Arrington,** an officer on the city committee and a quality consultant at Lucent's Oklahoma City Works, helps manage the ongoing recycling activities for Yukon, including training and coordinating more than 70 volunteers. Arrington's most recent accomplishments include arranging for the purchase of two self-service recycling containers - making recycling available to Yukon residents 24 hours a day, and developing a proposal for a curbside recycling program. At work, he constantly stresses to colleagues the importance of reducing, re-using and recycling and even offers to match donations to environmental charitable organizations made by employees in his office.



From left to right:
Robert Johnson (1) (representing Peter Chen)
John Gillian (2)
Aubrey Arrington (3)
Ray Stepnoski (4)

4> Promoting Farmland Preservation—Ray Stepnoski sees his job as township supervisor in Buckingham Township, Pennsylvania, as more than just ceremonial. In his four years of service to the community, he saved the township more than 950 acres of prime farmland, and changed zoning to promote the use of Transferable Development Rights. He has also instituted a landscape review committee, an extensive plant list to promote the reintroduction of indigenous plant species in developments and a wastewater management system that uses recycled waste water in crop irrigation.

5> Landfill Methane Recovery Project— One-and-a-half miles northwest of Columbus, Ohio, at the Bedford I Landfill, methane gas is compressed and piped to Lucent's Columbus Works' power plant, where it is used to fuel the plant's primary boiler. The U.S. EPA recognized this application as the premier project of its kind in the U.S. The project is also notable for the way fuel can be burned - either natural gas or methane can be burned independently or simultaneously in any proportion.



From left to right:
Steve Teets (5)
José Manuel Veiga (6)
Carmen Milora (7)
Shahab Siddiqui (8)

6> Improvements in Environmental and Energy Efficiency—This team of Microelectronics operations employees in Tres Cantos, Spain, analyzed their facilities and found innovative solutions to improve their efficiency, generating significant energy savings and environmental improvements. They modified a treatment system to reduce the concentration of phosphates in wastewater discharge, re-engineered the wastewater plant, improved cooling systems, and re-used chemicals and cooling water. These efforts have reduced key pollutants by 69 percent, emission of greenhouse gases by 108 metric tons, and energy consumption by 1.2 million kilowatt hours. In addition, total electricity, water and chemical expenses have been reduced by

$220,000 per year.

7> Lucent RE-USE Business— The Lucent RE-USE business at the Merrimack Valley Works remanufactures used equipment, reducing the amount of waste and potential pollution that would accompany the production of new equipment from raw materials. And re-using previously manufactured parts reduces the amount of energy required to provide a fully functional piece of telecommunications equipment to customers.

8> Speedy Conversion to a Non-VOC Optical Fiber Color Coating System—In April 1997, the Atlanta Works plant faced a challenge to develop and implement an enhanced color coating system. A team of Bell Labs and Network Products Group employees met the challenge in just 10 weeks by formulating 12 different colors, selecting a new ink manufacturer and using existing processing equipment. The volatile organic compound (VOC) emission is down 92 percent in the ink area, and overall VOC emission has been reduced by 67 percent.

9> Campinas Office/Manufacturing Construction Program—Drew Friestedt, a Lucent Real Estate project manager, was in charge of an office construction project in Brazil, where local regulations require a level of waste water treatment that is not consistent with Lucent's worldwide standards. Friestedt and his team developed an approach that will ensure that waste is disposed of in a manner consistent with Lucent's environment, health and safety standards.



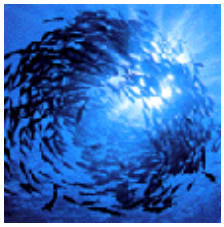
From left to right:
Robert Paine (9) (representing Drew Friestedt)
Warren Davis (10)
Scott Houthuysen (11)

10> Non-Hazardous Waste Management Best Practices—Led by Lucent Real Estate, with Global Procurement playing a key role, a team of employees set out to create a non-hazardous waste management best practice for use by service buyers, property and environmental managers and property occupants. The Practice includes information needed to conduct waste management operations, such as planning, buying, managing and delivering. The result was a practice that is designed to be ISO 14001 compliant, provides for the measurement of generated company waste and favors recycling over landfill deposit.

CONTINUE ▶

EH&S PARTNERSHIPS AND AWARDS WON

EH&S Partnerships



**Member, WasteWi$e—** WasteWi$e is a voluntary U.S. Environmental Protection Agency (EPA) partnership program through which businesses eliminate costly municipal solid waste, benefiting their bottom line and the environment. The program addresses preventing waste, buying products with recycled content, re-using, recycling where possible, treating to reduce volume and harshness, and using landfill as the choice of last resort. Lucent's Global Real Estate organization is guiding and assisting Lucent facilities in this effort.

Charter Member, Climate Wise— Climate Wise is a U.S. EPA/Dept. of Energy voluntary program for the reduction of greenhouse gases, in which companies agree to identify and implement cost-effective energy efficiency and pollution prevention measures. Lucent, which has been a member since 1994, is one of more than 400 member companies.

Participant, Project XL— Project XL, which stands for "eXcellence and Leadership," is a U.S. EPA initiative that tests innovative ways of achieving better and more cost-effective public health and environmental protection. Lucent's Microelectronics Group is working on a development project that uses the environmental management system to streamline regulatory reporting and permitting, saving resources for substantive compliance activities.

Participant, Common Sense Initiative— The EPA's Common Sense Initiative (CSI) brings together federal, state and local government representatives; environmental, environmental justice and labor leaders; and industry executives to examine the full range of environmental requirements affecting six pilot industries, including electronics. The goal is to find cleaner, cheaper and smarter approaches to environmental protection.

Member, EPA's PFC Emission Reduction Partnership for the Semiconductor Industry— Microelectronics Group has signed a voluntary agreement to reduce emissions of greenhouse gases at all its integrated circuits manufacturing facilities. Microelectronics will collaborate with the EPA to research

environmentally responsible and cost-effective solutions for controlling emissions of atmospherically long-lived perfluorocompounds (PFCs) and hydrofluorocarbons (HFCs), which are believed to contribute to global warming.

Ally, U.S. EPA Energy Star Computer Program— The Energy Star Program was designed to promote the development of energy-efficient office equipment. As an Energy Star Ally, Microelectronics Group incorporates low power consumption design into many integrated circuit products to help manufacturers achieve energy-efficient systems and equipment. Energy Star Ally components permit equipment like computers, printers and fax machines to automatically power down to greatly reduce energy consumption, thereby reducing the amount of fossil fuels that are burned to generate electricity. Japan, Sweden, and New Zealand have joined EPA in labeling energy-efficient office equipment, and many other countries are in the process of developing similar programs in partnership with U.S. EPA.

Participant, U.S. Occupational Safety & Health Administration's (OSHA) Voluntary Protection Program (VPP)— This independent, third-party certification process recognizes exemplary employee health and safety programs implemented through cooperation among all levels of management, technical staff and occupational employees. To gain certification, management and employees must agree to operate an effective safety program that meets a set of criteria established by OSHA, above and beyond regulatory requirements. VPP requires employees to be actively and genuinely involved in improving workplace health and safety, and to demonstrate their contributions to a safe and healthful work environment.



VPP Team raises the STAR flag at Microelectronics Group's Solid State Technology Center in Breinigsville, Pennsylvania.

Awards Won

Omaha Works received the "Award of Honor With Distinction" from the Safety and Health Council of Greater Omaha for "Outstanding Achievement in Accident Prevention and Safety Performance." The Omaha Works was also recertified as a VPP STAR site, and became the first manufacturing facility in Nebraska to receive ISO 14001 certification.

Columbus Works was honored by the Ohio Governor's Office with an "Outstanding Achievement in Pollution Prevention" Award for replacement of soldering technology that resulted in a 70 percent reduction of volatile organic compounds.

Merrimack Valley Works (Mass.) was honored by New England Electric System and the Conservation Law Foundation for instituting energy saving programs.

Oklahoma City Works was honored by the Oklahoma Recycling Association with an "Environomic Leadership" Award for its outstanding recycling program. The Oklahoma City Works was also honored by the Oklahoma Dept. of Environmental Quality's Target '98 Program for voluntary toxic use reduction.

Mt. Olive Product Realization Center (N.J.) was honored by the Morris County Municipal Utility Authority with an award for "Most Comprehensive Recycling Program."

Lucent Qingdao Transmission (China) was honored by the Qingdao City Government with its "Advanced Environmental Protection Enterprise" Special Award for 1993-1997. In addition, Merry Gao of Lucent Qingdao received the "Advanced Person for Environmental Protection" Award for 1993-1997.

Lucent Technologies Network Systems Espana (Spain) was honored by EXPANSION, the leading Spanish financial newspaper, and Coopers & Lybrand with their "Best Overall Environmental Management" Award. The award was presented by Ms. Isabel Tocino, Spain's Minister of Environment.

Lucent Technologies Poland Manufacturing Operations in Bydgoszcz won an award in "The Employer – Safe Work Organizer" competition organized by the Regional Labour Inspection and The Board of Pomeranian Employers.



1997 ENVIRONMENT, HEALTH AND SAFETY REPORT

ENVIRONMENT, HEALTH AND SAFETY COMMUNITY LEADERSHIP



Lucent Technologies is committed to protecting the environment and the health and safety of our people, our customers, and the communities where we operate. Meeting this commitment is a primary management objective and the individual and collective responsibility of all Lucent employees worldwide. EH&S leaders in Lucent Technologies, listed below, strive to ensure that Lucent fulfills its EH&S commitments by supporting managers in achieving their EH&S objectives and employees worldwide in meeting their individual and collective EH&S responsibilities.

The Environmental, Health and Safety Lead Team integrates the Lucent EH&S community to achieve focus, efficiency and performance. It recommends EH&S policies and goals for decision by the Office of the Chairman; approves EH&S standards for worldwide implementation; and provides leadership in the deployment of EH&S management systems:

John D. Pittman,
Vice President, Chief Quality, Environment, Health & Safety Officer

Richard H. Bennett, Jr.,
Global EH&S Vice President

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New Ventures

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Switching and Access Systems

Michael Glowatz, Jr.,
Bell Laboratories

Paula Horii,
Public Relations

Rex L. Hughes,
Chief Information Officer

Stanley Kaufman

Nelson W. Marshall,
Global Manufacturing

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Wireless Networks

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Global Service Provider Business

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Business Communications Systems

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M.D., Health and Safety

John Signorello,
Real Estate

The **Global Environmental, Health and Safety Management Team** provides EH&S program guidelines, best current practices and tools to the Lucent community and monitors EH&S performance worldwide:

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China

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