

## Toxics Use Reduction Planners: Building Competitiveness Through Innovation and Effective Materials Management

by Pam Civie & Todd MacFadden,  
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Massachusetts firms that manufacture or process at or above 25,000 lbs. a year, or otherwise use 10,000 lbs. per year of a listed toxic chemical, are required to report on use and waste and submit reduction plans to the state. Through Toxics Use Reduction (TUR) planning, companies have identified safer, less expensive alternatives and more efficient processes. As a result, Massachusetts companies are providing a safer environment for their workers and neighbors, as well as finding rewards in savings and in competing in the global marketplace. Since 1989, companies in Massachusetts have reduced their toxic chemical use by 42%.

The Toxics Use Reduction Institute (TURI) recently recognized the efforts of the following TUR Planners for their leadership and pioneering efforts in contributing to the impressive statewide reductions in chemical use and byproduct generation.

**Donald Alger,**  
Environmental Coordinator,  
Allegro Microsystems, Inc.,  
Worcester

Don Alger leads a ten-member TUR Team at Allegro Microsystems, a mid-sized semiconductor manufacturer in Worcester. In 1999, under Don's leadership, Allegro served as a Cleaner Technology Demonstration site, utilizing the opportunity to evaluate water conservation technology to reduce the use of expensive and hazardous water treatment chemicals, with an estimated savings of \$275,000 annually while still achieving the ultra-pure process water required in a

semiconductor fabrication process. Allegro has continuously sought safer chemicals for its core manufacturing operations, and has greatly reduced its use of nitric acid, sulfuric acid and isopropyl alcohol, yielding a combined annual savings of about \$425,000. The company is currently implementing a design modification that will lead to substantial reductions in the use of xylene and other solvents.

**Jack Bailey,** Environmental,  
Safety and Risk Manager  
Bose Corporation, Framingham

Jack Bailey was among the first group of individuals in 1992 to become a certified TUR Planner. In 2002, Jack became Environmental, Safety and Risk Manager for Bose Corporation, where he directs projects to reduce lead solder used in its products, and oversees the development of the company's first TUR Plan. Before joining BOSE, Jack spent 15 years as Health and Safety Director at Acushnet Rubber. The company cut air emissions of methylene chloride, trichloroethylene, and Freon by more than 50 tons a year, saving over \$100,000 in chemical costs alone. Through conservation, the company saved \$1.75 million per year in water and sewer costs, and another \$160,000 by reducing annual energy consumption by 2 million kilowatt hours. Acushnet was the second company in



Recently recognized by the Toxics Use Reduction Institute, Millipore Corporation received a certificate for their leadership role in the Environmental Management Systems Peer Mentoring Work Group. Pictured left to right are Pam Civie, Technical Support Associate at TURI, Randy Boles, EHS Manager at Millipore, David Newman, EHS Director at Millipore, and Michael Ellenbecker, Director of TURI.

the United States to become ISO 14001 certified, and several of its TUR projects have been the subject of case studies by TURI, the Office of Technical Assistance and the EPA.

**Ray Lizotte,** Senior Environmental  
Engineer, Texas Instruments  
Incorporated, Sensors and  
Controls Division, Attleboro

Since 1987, Ray Lizotte has fostered a team-based approach to TUR, to reduce Texas Instruments' (TI) reliance on trichloroethylene, a toxic chemical, from 850 tons a year in 1985 to less than two tons. Other victories include eliminating over two million pounds of anhydrous ammonia, and cutting its use of cyanide compounds from 35,000 pounds in 1996 to just 5,000 in 2000, for which TI received the Massachusetts Governor's Award for Excellence in TUR. Currently, as the TI Attleboro facility is transitioning from manufacturing to product development, Ray is promoting environmental sustainability through product redesign. Ray has taught several modules of the TUR Planner course since it was developed in 1992, and has contributed to nearly every

major TUR educational conference for the past decade.

**Douglas C. DeVries,  
Hyde Manufacturing Company,  
Southbridge**

Through effective leadership and TUR Planning, Doug DeVries had managed to reduce Hyde's use of toxics to levels well below the reporting thresholds by 1995, and has taken itself out of the Toxics Use Reduction Act (TURA) regulatory loop completely ever since. Doug continues to seek TUR and waste reduction techniques. In the past decade, Hyde has reduced hazardous waste by 93% and non-hazardous waste over 85%. Hyde continues to achieve \$150,000 in annual cost savings, including \$9,000 saved annually by recycling in the lacquering area, and a 7,000% rate of return on capital invested in a new filter system. He has also fostered innovative solutions to packaging, in some instances completely eliminating the need for cardboard and plastic in individual packaging of Hyde's products.

**EMS Matching Grant Recipient:  
Millipore Corporation**

TURI has awarded Millipore Corporation an Environmental Management System (EMS) Matching Grant in recognition for its leadership in reducing environmental impacts in Massachusetts. As a leader in the TURI peer mentoring process, Millipore has hosted teams from other companies to exchange ideas and best practices.

Since the inception of the Toxics Use Reduction Act of Massachusetts in 1989, Millipore Corporation has reduced its toxics use by 50 percent (Toxics Use Reduction Act Core Massachusetts Filers, 1990-2002). The grant from TURI is helping Millipore accelerate its implementation of an ISO 14001-compliant EMS starting at the Bedford campus.

The company's strong corporate culture of environmental stewardship and social responsibility is demonstrated by the following projects:

- **Methanol Recovery Unit** (Bedford, Mass.) – reduces the amount of process wastewater produced and raw materials needed.
- **Solid Waste Reduction Program** (Bedford, Mass.) – a comprehensive management system that addresses the reduction, reuse and recycling of a variety of materials.
- **ISO 14001** – Millipore facilities in Jaffrey, N.H.; Cork, Ireland; and Molsheim, France are ISO 14001 certified. Millipore's corporate goal for 2004 is to implement an ISO 14001-compliant EMS for its Bedford campus.
- **Solvent Recovery System** (Molsheim, France) – captures 12,000 pounds of methylene chloride each year from the plant's exhaust emissions.
- **Water Reuse Program** (Jaffrey, New Hampshire) – to avoid drawing approximately 30,000 gallons per day of water from the site's underground wells. Approximately 10 million gallons of water per year are recycled from a product testing operation and 5,000 gallons per day of water are reused as feed to the facility's toilets.

Headquartered in Billerica, Massachusetts, Millipore is a multinational, high technology bioscience company that provides technologies, tools and services for the development and production of new therapeutic drugs. ■

Pam Cive is Technical Support Associate and Todd MacFadden is Project Manager for the Toxic Use Reduction Institute.

For more information about the Institute, please call (978) 934-3275 or visit [www.turi.org](http://www.turi.org).

## About the Toxics Use Reduction Institute

Established by the Commonwealth's Toxics Use Reduction Act (TURA) of 1989, the Institute works to help industries, institutions and communities implement toxics use reduction to achieve a cleaner environment and a healthy economy.

### Programs and Services

A multidisciplinary research, education and technical support center, the TURI staff of engineers, analysts, educators and support staff provide services in the following five areas:

1. **Technology Innovation** through supply chain and peer networks and grants to academic researchers and industries working on TUR technologies and methods.
2. **TUR Planner** core training and continuing education.
3. **Outreach and Training** in communities through community grants and other programs.
4. **Surface Cleaning Laboratory** testing the performance of non-toxic and less-toxic cleaning alternatives for specific, client-defined applications.
5. **Research Library** for publications and articles.

Programs for industry (Coated Wire and Cable, Electronics, Metal Finishing, Biotech, and small business sectors) include:

- Supply Chain Initiatives
- Peer Networks
- Industry Sectors
- Demonstration Sites
- Case Studies

### Partner Organizations

- University of Massachusetts Lowell
- Lowell Center for Sustainable Production
- Massachusetts Department of Environmental Protection
- Massachusetts Office of Technical Assistance