

Oregon Toxic Use and Hazardous Waste Reduction Law Implementation: 2002 Status Report



Introduction

Purpose of Report

This report describes DEQ's recent efforts in implementing Oregon's 1989 Toxics Use and Hazardous Waste Reduction (TUR) law. The TUR law is implemented by DEQ's Toxics Use and Hazardous Waste Reduction Program (TUWRAP) to promote reduction in toxics use and hazardous waste generation in Oregon. Additional information on TUR activities and achievements is also available in DEQ's 2001 Status Report (<http://www.deq.state.or.us/wmc/tuwrap.html>).

Statutory Foundation for Program

Oregon's Toxics Use Reduction and Hazardous Waste Reduction Act is the foundation for DEQ's efforts to reduce both the use of toxic chemicals and the generation of hazardous waste. The 1989 Act created one of the first pollution prevention planning programs in the nation.

The stated goal of the Act is to protect public health, safety, and the environment by encouraging reduction in the use of toxic substances and reduction in the generation of hazardous waste. These reductions are encouraged whenever economically and technically feasible, without shifting risks from one part of a process, environmental media, or product to another.

The Act directed DEQ to pursue this statutory policy through several mechanisms, around which this report is organized, by:

- Providing facilities that use toxic chemicals or generate hazardous waste with **technical assistance**;
- Assisting required facilities in meeting statutory criteria for toxics use or hazardous waste generation to engage in comprehensive **facility planning**; and
- Monitoring the use of toxic substances and the generation of hazardous waste through **annual reporting**.

This report discusses each mechanism in detail.

Technical Assistance

Statutory Direction

The Act instructed DEQ to provide technical assistance to facilities that use toxic chemicals or generate hazardous waste. In providing this technical assistance, priority is given to assisting facilities in developing and implementing a Toxics Use Reduction and Hazardous Waste Reduction Plan. The statute suggested a variety of potential mechanisms for providing outreach to fulfill this objective, including direct, on-site technical assistance, information clearinghouse activities, telephone assistance, training workshops, and development of a system to measure effectiveness of reduction measures.

Identifying Technical Assistance Priorities

In general, each DEQ Regional Office considers several factors in identifying its technical assistance outreach priorities, including:

- Environmental priorities within a geographic area (e.g., a watershed stressed by certain pollutants);
- Industrial/commercial sectors (e.g., businesses that may be contributing pollutant loads to the watershed or generating public complaints);
- Quantities of toxic chemicals used or hazardous wastes generated; and
- Opportunities for partnering with other organizations to address the priorities (e.g., local government agencies or trade associations).

This approach offers flexibility to DEQ Regional Offices in priority setting, recognizing that these factors will vary from one region of the State to another. These priorities are then formalized through DEQ's annual Operating Plan and the agency's Performance Partnership Agreement with the Environmental Protection Agency (EPA).

Measuring Environmental Success

DEQ has focused its TUR efforts on helping businesses reduce their use of toxic chemicals and their generation of hazardous waste. Over the last five years, DEQ has worked to design and implement performance measures that identify the environmental and economic results of technical assistance efforts. This effort involved evaluating and developing improved data management systems as well as developing and piloting environmental performance measures for technical assistance activities.

Environmental Results of On-Site Technical Assistance - Marathon Coach, Coburg, Oregon

A successful business expansion by Marathon Coach created more assets for the company, but *also* doubled their generation of hazardous waste. Marathon turned to DEQ's TUWRAP staff for help. Using DEQ recommendations, Marathon began distilling and recycling all waste cleaning solvent, eliminated the use of other solvents and decreased the number of paint gun cleaning stations at the facility. The results:

- Purchases of toxic chemicals reduced by **11,000 lbs**/year;
- Hazardous wastes generation reduced by **5,000 lbs**/year; and
- Cost savings of **\$20,000**/year.

Says Marathon's Mike Warner:

"We've saved thousands of dollars this year in reduced purchases of products and disposal of hazardous waste. Additionally, we will continue to save thousands of dollars in the future. This is a win-win deal for both DEQ and Marathon Coach. Without your help and understanding, I doubt we would have been able to comply as quickly and implement these reductions."

In March 1999, following an extensive evaluation of DEQ's internal process for managing field activity data, the Hazardous Waste Process Improvement Team recommended the development of a new data management system for field activity data. DEQ's data management team has been working on the development of this innovative data tracking and measurement database, termed the Oregon Hazardous Waste Information Management Exchange (OHWIME) over the past several years. Implementation of OHWIME is occurring in discreet phases; the first phase was completed in 2002, allowing regional management of field inspection data. Phase two will implement OHWIME for tracking and reporting Statewide technical assistance results.

Development of performance measures is a key aspect of DEQ's efforts to enhance data management and to more effectively report the environmental results of technical assistance. Performance measures were first piloted in DEQ's Western Region. Western Region staff developed, piloted and further refined a set of results-oriented measures of compliance and "beyond compliance" practices resulting from technical assistance. These measures quantify environmental benefits related to the use/management/disposal of toxic chemicals and hazardous wastes. The environmental results are categorized as *reduced*, *diverted* or more *safely managed*, as described below:

- **Reduced** or eliminated (e.g., a toxic chemical is replaced with a less toxic chemical);
- **Diverted** from improper disposal on the land or in Oregon's waters (e.g., disposal in solid waste landfills and storm ditches), to more environmentally safe treatment and disposal in hazardous waste landfills and sanitary sewer systems;
- More **Safely Managed** to minimize releases during storage and transportation.

Figure 1: Environmental Results in Western Region

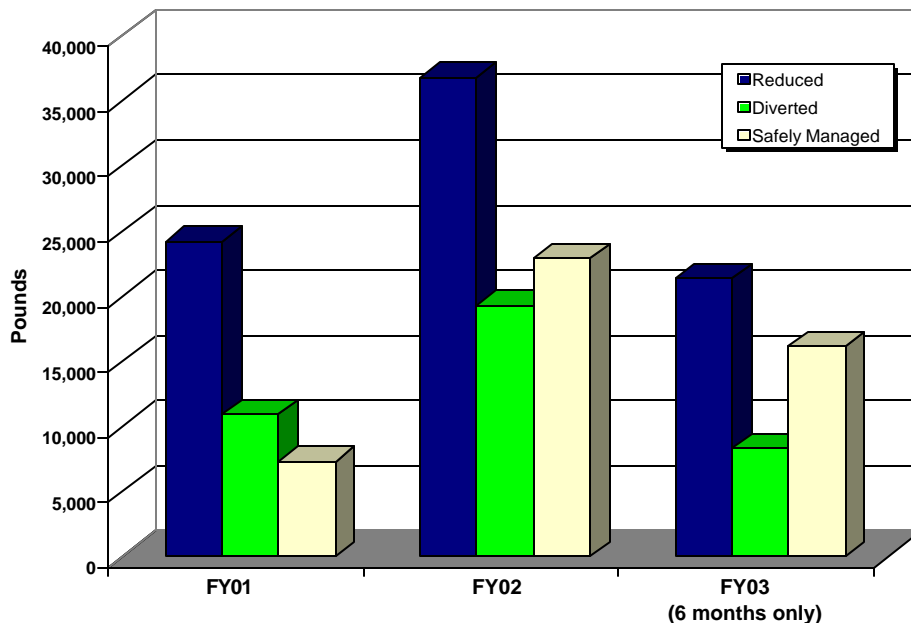


Figure 1 illustrates the environmental results achieved through conducting 854 technical assistance visits in Western Region over the past 2½ years. (Note that the quantities for 2003 reflect only the first half of the Fiscal Year.) Data collection includes the number of toxics use and pollution prevention recommendations provided by DEQ staff; 91% of these recommendations have been implemented by facilities.

Over this time some 82,341 lbs. of toxic chemicals and hazardous wastes were reduced or eliminated; 38,443 lbs. of hazardous waste were diverted to more environmentally protective treatment/disposal methods; and 46,241 lbs. of hazardous waste were more safely managed. In addition, some 54,000 gallons of wastewater were reduced and over two million gallons of wastewater were diverted to more environmentally protective disposal methods (e.g., from storm sewers to sanitary sewer treatment plants). These types of measurement results will soon be collected Statewide. By 2004, DEQ will be able to use the field tracking database (currently undergoing phased implementation) to track and report the environmental successes of technical assistance visits Statewide.

Technical assistance helps businesses make small changes for big environmental results. After a no cost/no obligation technical assistance visit from DEQ, Cascade Tire Factory in Salem installed an outdoor tire washing "sink." **Twelve thousand gallons** of soapy, grimy wastewater that used to run into Pringle Creek, is now safely managed by the City's sanitary system.

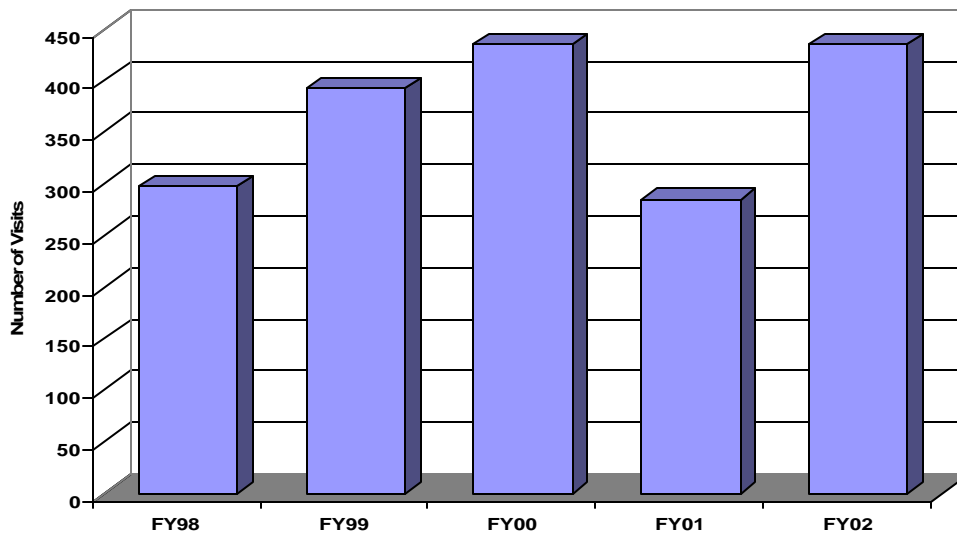
Technical Assistance Visits

DEQ has helped hundreds of facilities throughout the State reduce their use of toxic chemicals and their generation of hazardous waste by providing on-site technical assistance. This type of assistance has always been an agency priority in implementing the TUR law. From its earliest efforts to promote compliance and waste reduction, DEQ recognized that working with businesses one-on-one, through onsite consultation, was the most effective means of promoting reductions in hazardous waste and chemical usage. Site visits allow field staff to view obstacles businesses face, firsthand, and they provide a personal connection between DEQ staff and businesses. One-on-one visits also help by fostering better understanding of environmental regulations, and by providing facility and process-specific suggestions that help the environment - and a business's bottom line as well. Benefits often go beyond those related to toxics use and hazardous waste management, by reducing pollutant loads to Oregon streams and rivers.

“Participating in this technical assistance project was a good business decision. I really appreciated having you guys (who are the experts) walk through our facility and train us, and for free. We’ve gained a better understanding of the regulations and know we are in compliance. We’ve also been able to reduce the amount of waste we generate.”
 Justin Cumiford,
 Hessel Tractor - Eugene, Oregon

Figure 2 shows the number of technical assistance visits provided over the last five years. The total number of visits conducted during any particular year is often directly related to specific geographic or sector-based outreach efforts implemented as a priority during that year. Thus,

Figure 2: Number of Technical Assistance Visits by Fiscal Year



during 2000 some 435 visits were conducted; 150 of these related to DEQ’s efforts to assist dry cleaners in complying with new waste minimization requirements that became effective in 1998. Again in 2002 the number of visits peaked due to the Pringle Creek watershed effort (WET) described below.

Examples of Technical Assistance Initiatives

Listed below are some examples of technical assistance initiatives developed by DEQ Regional Offices. The Regional Offices develop their geographic and sector priorities based upon local needs and opportunities. Many of the technical assistance visits were conducted as part of these initiatives. The remaining visits are conducted as part of ongoing outreach activities and in response to facility-specific requests.

- **Pringle WET project.** The Watershed Enhancement Team (WET) was created to engage all members of the community in actions to prevent or reduce pollutants entering the Pringle Creek watershed in South Salem. The Pringle WET project is a partnership effort that includes DEQ and local businesses, volunteers, and local agencies. WET strives to elicit small changes in everyday waste management activities by the entire community – businesses, residents, and institutions. The goal of that effort is to better protect and enhance water quality and habitat in this urban watershed.

A key aspect of the Pringle WET project is to obtain business owner/operator commitment to implement ‘beyond compliance’ amendments to their daily waste management activities. DEQ staff visited 177 businesses in 2002, providing customized technical assistance on waste management issues to help businesses improve their environmental performance. The businesses were encouraged to pledge their commitment to go beyond the standard compliance threshold. Business pledges included commitments to maintain storm drain catch basins, increase recycling rates, as well as major changes to business practices to better protect the environment. This community-based effort achieved significant environmental results in the quantity of wastes that were *reduced*, *diverted* to better treatment/disposal methods, and/or more *safely managed*, including:

- ❖ **3 tons** of hazardous waste solvents, paint wastes, sealants and cleaning solutions;
- ❖ Over **13,000 gallons** of wastewater;
- ❖ Over **6 tons** of recycled materials, including **six pounds** of highly toxic liquid mercury;
- ❖ **2 tons** of sludges from storm drains and manufacturing processes; and
- ❖ **5 tons** of petroleum wastes, including oil filters and gasoline.



- **Radiator Shop project.** Eastern Region staff discovered significant compliance and environmental concerns at radiator shops, particularly in the management of hazardous lead-containing wastes. Rather than responding to this concern with traditional enforcement, DEQ wanted to make sure that businesses received the training and compliance information needed to address the problem. DEQ conducted an educational outreach to radiator shops. Staff developed a specialized training presentation and held six, well-publicized training sessions in various locations, providing practical information on how to manage hazardous, radiator-repair wastes. During 2002, Hazardous Waste staff in Northwest Region provided technical assistance visits to 22 repair shops and one radiator manufacturer in the Portland metropolitan area. DEQ also produced a 22-page “Guide to Hazardous Waste Management for Radiator Repair Shops.” The guide was distributed to all shops in Eastern Region, made available to other regions and posted on the DEQ web site.

- **High School Lab Cleanout.** Old, toxic chemicals, stored in school laboratories can form explosive compounds that are a potential threat to students and teachers. Thanks to a special school laboratory cleanout effort, sponsored by DEQ’s TUWRAP program, 15 schools in eastern and northwestern Oregon have been able to rid their laboratories of unknown, unstable – and potentially unsafe - laboratory chemicals.

DEQ assisted participating schools by developing an inventory of waste lab chemicals. In Eastern Region site visits were scheduled to coincide with small business hazardous waste collection events in the area so that obsolete chemicals could be economically disposed.

“We would like to thank you for your assistance in helping us identify and dispose of hazardous materials from our school facilities. What started as a small project in one of our closed facilities became a comprehensive undertaking ... identifying and disposing of materials stored in chemistry labs including explosives, radioactive materials and extremely hazardous chemicals. Not only did you develop the program but also found financing to assist us in the removal and disposal.... We feel assured that our facilities are much safer and healthier for our students and staff due to your diligence and the assistance you provided us.”

Mike Corley,
Superintendent, Clatskanie School District
Clatskanie, Oregon

In Northwest Region, smaller, outlying schools received assistance in inventorying their obsolete chemicals and in transporting their wastes for safe disposal. Over 3,000 pounds of hazardous waste from school laboratories were collected for disposal. This included the collection of 173 pounds of mercury as well as other highly dangerous chemicals, including aged picric acid (a highly explosive, reactive material).

- **Eco-Logical Business Program.** The Eco-Logical Business (ELB) Program recognizes automotive repair and autobody shops that implement environmental measures that go beyond compliance by certifying them as an “Ecological Business.” DEQ’s TUWRAP and Air Quality staff worked with

More benefits of on-site Technical Assistance:

Collins-Pacific, in Medford Oregon, found an environmental solution with the help of DEQ’s TUWRAP assistance. Wastewaters from the cleaning of aluminum parts were being discharged to a storm drain with an outlet to Bear Creek, a major watershed in the Medford-Ashland metropolitan area. DEQ discovered that the wastewaters were acidic, with a pH of 1, and informed the company that they would need to stop the discharge. DEQ’s TUWRAP staff then helped the company devise a washing and dipping system inside the facility building, including wastewater neutralization and disposal through the sanitary sewer under the approval of the City. Approximately 100 gallons/week of washwater formerly discharged to the creek is now safely managed through the City’s wastewater treatment facility as a result of DEQ’s technical assistance.

local cities, counties and regional agencies in the Portland metro area to develop and implement this innovative program. The Program benefits participating businesses by raising consumer awareness about companies that are exemplary environmental stewards. DEQ provided guidance on best management practices and developed a checklist reflecting the criteria for achieving certification. Hazardous Waste staff conduct technical assistance and certification visits for businesses interested in receiving certification. Since its inception in 1998, 34 businesses have been certified in the Portland metro area. Recently the Program expanded to the Salem area, where two shops have received certification. The ELB Program will likely next expand by developing a recognition program for the landscaping industry.

- **South Shore Well Field.** The City of Portland's Columbia south shore well field is a major water resource, providing back-up water supplies to a significant portion of the State's population. Part

of the well field is located in an industrial area. The cities of Gresham, Troutdale, and Portland are revising their municipal codes to provide additional protections for the well field area, including new reporting and secondary containment requirements. The Portland Water Bureau requested assistance from DEQ in providing technical assistance to area businesses on pollution prevention and spill containment. The Bureau sees this assistance as an important element of the well field protection program. DEQ is continuing to partner with the Fire Bureau and Northwest Automotive Trades Association to provide needed technical resources for the community to meet its wellhead protection goals.

- **The Coastal Marina Outreach.** U.S. EPA requires authorized coastal states to develop Coastal Nonpoint Pollution Control Programs. The Oregon Department of Land Conservation and Development (DLCD) and DEQ worked together to develop management measures to assist marina operators.

In Fiscal Year (FY) 2002, Hazardous Waste staff in Northwest Region conducted an outreach to north coast marinas, including 24 marinas and 5 boat repair facilities. In addition to providing on-site technical assistance on compliance and pollution prevention, DEQ worked with the Oregon Marine Board, DLCD, National Oceanic and Atmospheric Administration (NOAA), EPA, marina operators, harbor masters and others to obtain up-to-date information and develop a revised manual on best management practices and environmental compliance. DLCD provided funding to have the revised manual printed, which DEQ distributed to all marinas listed by the Oregon State Marine Board.



- **Portland Harbor Outreach.** Currently, Hazardous Waste staff in Northwest Region are conducting an outreach to businesses within two water drainage sub-basins of the Portland Harbor. Testing of Willamette River sediments identified outfalls in these areas as potential contributors to the environmental conditions observed in the river. This work is coordinated with DEQ's Cleanup Program and the City of Portland's Bureau of Environmental Services. DEQ is conducting site visits to review general industry practice in the area and assist businesses in improving environmental performance.
- **Underground Injection Control (UIC).** Improper disposal of waste to dry wells is a leading cause of environmental contamination. This contamination readily impacts groundwater and can be a serious threat to human health. To help businesses understand federal underground injection control requirements, Hazardous Waste staff offered specialized UIC training sessions and on-site technical assistance to Oregon businesses across the State. Hundreds of businesses participated in the trainings. DEQ staff trained with EPA and now provide updated information on UIC requirements during routinely-scheduled technical assistance facility visits.

Business Assistance Works!

Metal Specialties, a Salem metal fabricator, is saving \$500 per month after a no cost/no obligation technical assistance visit from DEQ. Metal Specialties and DEQ worked to reduce the disposal costs of their metal cutting sludges. These successes result from the collaboration of the Watershed Enhancement Team which partners DEQ, businesses, citizens, and local governments.

Training Events

Each year DEQ holds a number of hazardous waste generator training events that focus on toxics and waste reduction and hazardous waste compliance. DEQ offers a “Hazardous Waste Basics” and “Managing Common Wastes” training class in locations across the State, some of which are coordinated with community colleges and business associations. These events have been very popular among the regulated community; in FY 2002, 600 representatives from regulated businesses and organizations in Oregon attended these training sessions. DEQ also develops specialized training sessions to address specific environmental or industry-based concerns, such as the radiator shop initiative and sessions on the requirements for underground injection control wells, described above.

“Excellent training class yesterday! I will definitely recommend these classes to our clients in Oregon...”

Becky Accardo,
AIG Environmental

Hazardous Waste Collection Events

DEQ staff organize and participate in a number of events Statewide to collect hazardous waste from businesses that generate less than 220 pounds of hazardous waste per month. These events provide a convenient and economical means for companies to properly dispose of their toxic chemicals and hazardous waste. During 2000-2002, 17 collection events were held; over 58,700 pounds of hazardous waste from 139 businesses were collected and properly disposed. On average, each event collected over 3,400 pounds of waste including acids/bases, batteries, flammable liquids, oil-based paint, and pesticides/poisons. Most of the waste collection events occurred in rural areas of the State where hazardous waste collection opportunities are less available than in urban areas.

In addition to small business waste collection, DEQ conducts other special waste collection efforts. Recent examples include the following:

- **Agricultural Pesticide Collection.** During 2000-2002, over 27,400 pounds of hazardous waste pesticides from 117 agricultural businesses were collected and properly disposed. Collection event participants included nurseries, farms, park departments, golf courses, federal agencies and agricultural cooperatives. Many of the wastes were banned pesticides that are persistent and bioaccumulate in the environment, such as DDT, aldrin/dieldrin, chlordane, toxaphene and mercury-containing pesticides.
- **Mercury Switch-Out Program.** As a member of the Portland area Pollution Prevention Outreach (P₂O) Team, TUWRAP staff worked with the Northwest Auto Trades Association, the Oregon Environmental Council and the Ecological Business Program to establish a project where auto repair facilities would replace mercury-containing auto switches from customers’ cars for free. Initially designed to be implemented in the Portland metropolitan area, the Mercury Switch Out Program now includes more than 100 auto repair shops throughout the state. During 2002, approximately 1,500 mercury-containing switches, representing over two pounds of elemental mercury, were replaced with non-mercury switches.
- **Dredge Earth First Mining Rally.** In July 2002, DEQ partnered with the Dredge Earth First to sponsor a mercury collection event in Roseburg, Oregon. Dredge Earth First is an organization that convenes annual rallies to bring miners, mining clubs, and others together with the general public for raising awareness of public land use issues. At the rally, suction dredge miners demonstrate how dredges operate. During mining operations, elemental mercury is collected from streams. The collection event resulted in 10 pounds of elemental mercury being recycled.

Toxic Use Reduction Planning

Planning Requirements

The universe of facilities subject to planning requirements includes:

- **Large Quantity Generators** of hazardous waste (LQGs) - facilities generating more than 2,200 pounds of hazardous waste in a calendar month;
- **Small Quantity Generators** (SQGs) - facilities generating between 220 pounds and 2,200 pounds in a calendar month; and
- **Large Toxics Users** (LTUs) - facilities reporting to the federal Toxics Release Inventory (TRI) program.

These facilities are required to prepare Reduction Plans that include a statement of management commitment, reduction objectives, an evaluation of the toxic chemicals used and hazardous wastes generated, identification of reduction opportunities, employee training, and an implementation plan.

The benefits of toxic use reduction planning are many, for individual businesses and for Oregon, including:

- Streamlining production,
- Saving money – in raw material and waste disposal costs,
- Spurring innovation,
- Reducing environmental impacts, and
- Reducing regulatory burdens.

Reduction planning provides a vehicle for a business to engage in a “process flow analysis” of how they manufacture, use or manage materials. It encourages facility owners and hands-on staff to look at individual processes and materials and ask: What is the function of this chemical/process? Is this needed? Is there a better way? For example, Stanley Tool, in Portland, took a fresh look at their manufacturing process using the reduction planning tool. The process included parts cleaning, machining and storage before future processing, for which a subsequent round of cleaning was employed. This company considered delaying cleaning until the last step, or purchasing already-manufactured components. The company opted to revise their manufacturing process to eliminate duplicative cleaning, which reduced their use and purchase of toxic chemicals and reduced hazardous waste and wastewater discharges, and associated purchase/disposal costs.

All raw materials that are not incorporated into a product become a waste that must be managed and disposed, increasing both environmental and economic costs. Through reduction planning, businesses find ways to reduce their raw material usage and find new opportunities for use/re-use of wastes. This may result in significant cost savings in both raw materials and waste disposal, and may also reduce a company’s regulatory burden. For example, by switching to a water-based cleaning compound, a company may reduce their requirements under the Occupational Safety and Health Administration, Resource Conservation and Recovery Act, and, if large enough, their Air Quality permitting requirements.

Oregon citizens also benefit from toxics use reduction planning. When toxic chemicals and hazardous wastes are reduced, potential environmental releases and human exposures are minimized as well.

New Planners

As part of DEQ's program implementing the statutory requirements for TUR planning and reporting, each year Hazardous Waste staff identify businesses newly-subject to planning requirements. These new planners are facilities that are just entering the regulated universe or are those businesses that have changed ownership in the prior year. There has been a relatively consistent number of new planners needing technical assistance in identifying the toxic materials they use, planning for reductions in chemical use and waste generation, and managing hazardous wastes that are generated. DEQ staff are available to assist facilities in developing these toxics use/waste reduction plans.

New Businesses Subject to TUR Planning Requirements			
	<u>1998</u>	<u>1999</u>	<u>2000</u>
New planners	90	76	89

Planning Compliance

The number of noncompliant planners has decreased almost 50% over the last several years, from 141 in 1998 to 74 in 2000. During this time, DEQ staff focused on helping businesses comply with the planning requirements of the TUR statute through educational outreach and notifications.

DEQ continues to work with noncompliant planners to demonstrate the benefits of toxic use reduction planning. DEQ evaluates noncompliant planners to see if the planning requirements still apply, especially if an ownership change has occurred. DEQ assists new owners by re-evaluating an existing plan to see if it is still usable for the new owner. Businesses are offered assistance in conducting reduction evaluations through on-site technical assistance. DEQ shares information about chemical substitutions that other business sectors have successfully implemented, and often puts new and noncompliant planners in touch with other businesses that have successfully shifted to less toxic chemicals in their processes.

Annual Reporting

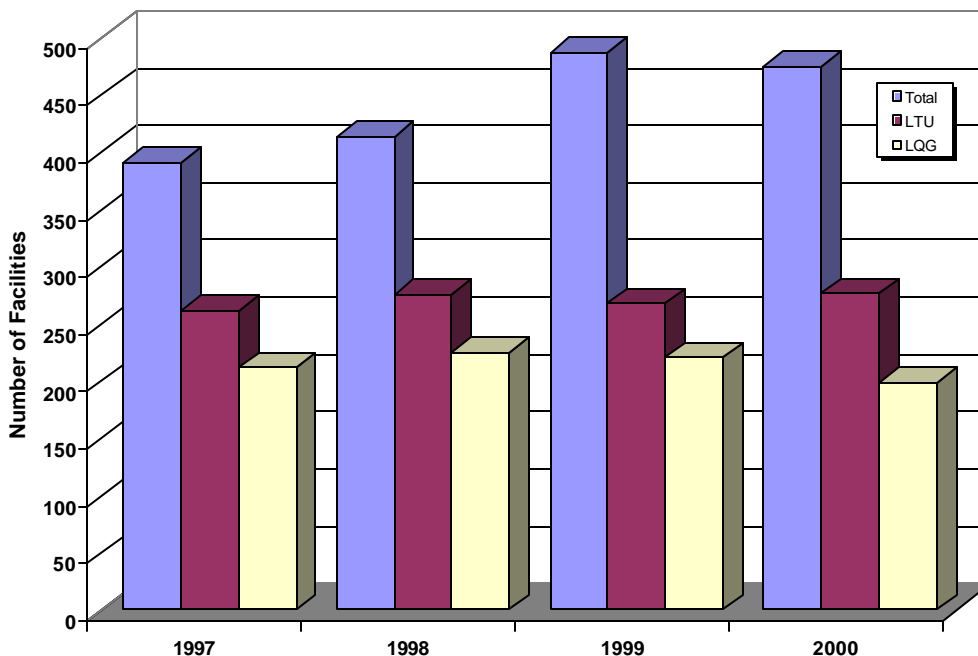
Toxic Use Reporting

The universe of facilities subject to annual toxic use reporting requirements includes Large Quantity Generators and Large Toxics Users (as defined under "Facility Planning" above); Small Quantity Generators have not been required to report since 1997, as the result of a statutory change to streamline reporting requirements. Large Quantity Generators and Large Toxics Users are required to report to DEQ annually on their use of the toxic chemicals that were discussed in their Plans. Hazardous waste generation data is reported to DEQ through the annual hazardous waste reporting process. In 2000 and 2001, DEQ provided a website allowing facilities to electronically report their toxics use.

As shown in Figure 3, the universe of reporting facilities has grown slightly since 1997. This growth is mainly in Large Toxic Users who are entering the universe due to changes in the federal Toxic Release Inventory, which brought in new facilities. Examples include bulk oil terminals (added in 1999) and facilities that release TRI persistent/bioaccumulative/toxic chemicals (PBTs), which resulted in newly-regulated facilities in 1998, 1999 and 2000. Note that 2001 data for Large Toxics Users are not currently available because EPA has not published the 2001 TRI data, which includes the universe of facilities subject to TRI reporting (i.e., Large Toxic Users). The number of Large Quantity Generators has

remained relatively constant. The total number of facilities by year is somewhat smaller than the sum of the individual categories due to overlap between them (e.g., there are some Large Toxics Users that are also Large Quantity Generators).

Figure 3: Facilities in Reporting Universe



DEQ examined recent compliance with reporting requirements, based on the number of facilities that responded to the mailing of “Annual Pounds Report” forms in September 2002. Forms were mailed primarily to new or existing reporters (that needed to complete forms for 2001) and to a smaller number of facilities that should have submitted them previously (for the years 1999 and 2000). Preliminary results indicate that the compliance rate for the mailing is about 90 percent.

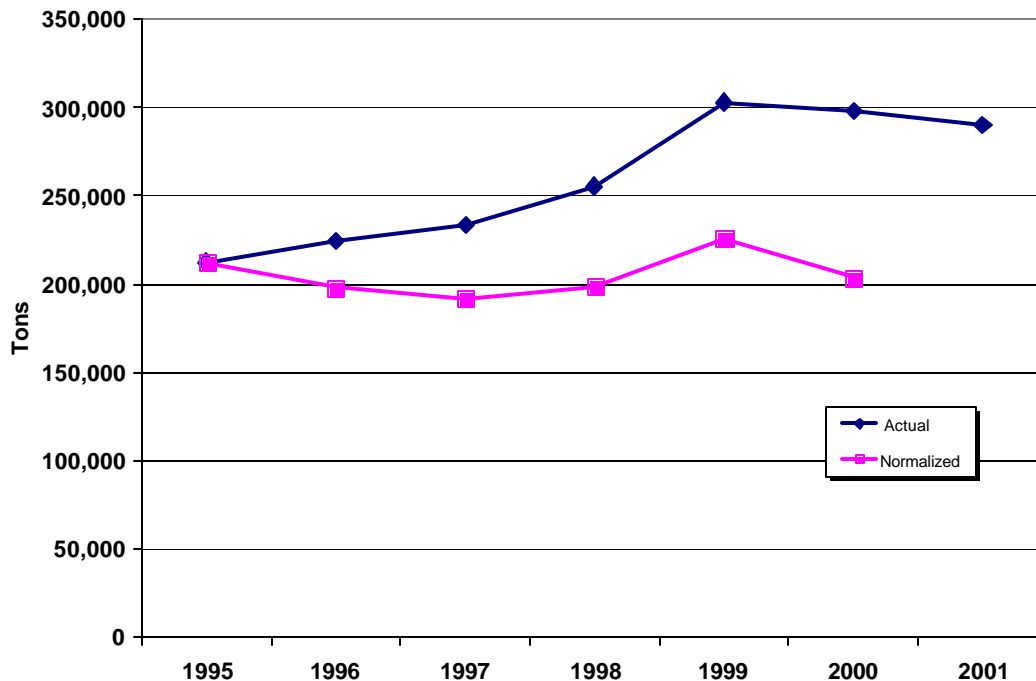
Trends in Toxics Use

DEQ examined trends in toxics use from 1995-2001. To accurately assess toxic chemical use over time, it was necessary to evaluate the same universe of facilities throughout these years and to exclude certain facilities (e.g., facilities just entering the reporting universe due to changes in Toxics Release Inventory reporting requirements, and Small Quantity Generators which did not have to report after 1996) from the assessment. With these adjustments, results indicate that actual toxics use increased from 1995-2001 (see Figure 4).

During the 1995-2000 period, economic activity in Oregon also increased significantly. A way to more explicitly factor in economic growth is to “normalize” the data by dividing actual use data by the growth in economic output, using the calculated Gross State Product (GSP) factor (base year 1995, not yet available for year 2001). The normalized data indicate that the trend in use (for a given level of state economic activity) was relatively flat.

There are several factors to consider when reviewing trends in use. First, “use” is defined quite broadly in the statute and rules as “use or production of a toxic substance.” As a result, facilities may have reported inputs, by-products, releases, or products as “use.” Second, the chemicals that are reported as used in the greatest quantities may not be the chemicals of greatest concern when toxicity and potential for exposure are considered. Finally, the GSP data used to normalize use for State economic activity provide only an approximation of economic activity for reporting facilities.

**Figure 4: Actual & Normalized Toxics Use
1995 - 2001**



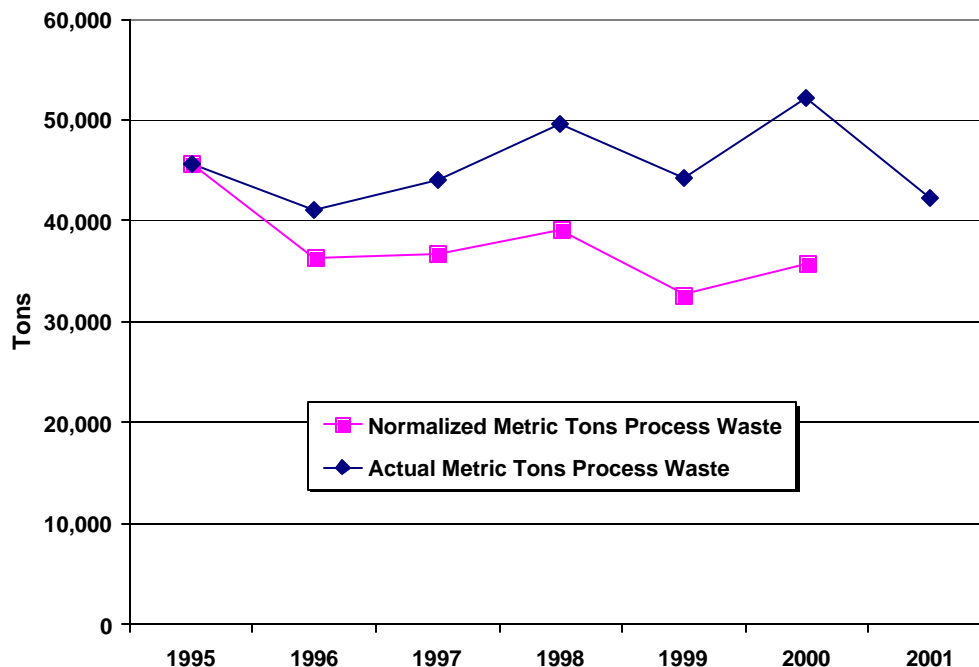
Trends in Hazardous Waste Generation

DEQ evaluated recent trends in the generation of hazardous waste in the State, focusing on process waste that is generated during manufacturing or other routine business operations. For this purpose, wastewaters, one-time or intermittent wastes, and remedial wastes were excluded from the data; the intent of the evaluation was to focus on the routinely-generated process wastes that are the most amenable to reduction efforts.

The actual reporting data, shown in Figure 5, indicate that waste generation was consistently between 40,000 – 50,000 tons during 1995-2001, despite significant increases in State economic activity. The waste streams driving the process waste quantities include electric arc furnace dust from blast furnaces, steelworks, and rolling mills, and spent potliner from the primary production of aluminum.

Normalized data indicate a general decreasing trend in hazardous waste generation. These reductions may, in part, reflect TUWRAP successes.

Figure 5: Generation of Hazardous Process Waste



Relationship of Toxics Use/Hazardous Waste Generation to TUR Activities

While site-specific reductions in toxics use and hazardous waste generation due to technical assistance activities have been documented at the facility level (see previous discussions), it is difficult to correlate the Statewide trend data provided above with DEQ activities. The reason for this is that the trend data are influenced by other significant factors including changes in economic activity. To more directly measure the effectiveness of Program activities on a Statewide basis, DEQ's new field data tracking system, OHWIME, will allow field staff to input and sort data regarding site-specific activities and quantitative progress measures (e.g., reduction in toxics use or waste generation resulting from a technical assistance site visit), and enable DEQ to report Statewide environmental results. As previously discussed, OHWIME is currently being implemented to track inspections and will be available for tracking technical assistance results in 2004.

Summary

For over a decade, Oregon's Toxics and Hazardous Waste Reduction Program has helped small and large businesses in Oregon evaluate their use of toxic chemicals, reduce their generation of hazardous waste and waste discharges to Oregon waters, and implement business practices which protect the environment - and oftentimes save money too. Businesses continue to receive the benefits of on-site technical assistance with compliance and waste reduction planning, as well as annual hazardous waste training sessions, local hazardous waste collection events, and educational publications.

These efforts have proven successful. The benefits of on-site technical assistance have been demonstrated and quantified on a facility-specific basis; individual business changes that reduce toxics use and/or hazardous waste generation, when taken collectively, can add up to significant protections for local environments. Data collected in Western Region alone have shown that technical assistance has resulted in the elimination or safer management of over 150,000 lbs. of toxic chemicals and hazardous wastes. At the Statewide level, toxic chemical usage has remained flat, while hazardous process waste has decreased relative to economic growth.

DEQ is committed to implementing the TUR Program to meet the needs of the business community and improve Oregon's environment. As Oregon has experienced changes in its economy and industry, DEQ's priorities have adapted to address new industry and environmental needs, and continue to be innovative. Many technical assistance initiatives include multi-media, geographic or sector-based approaches specifically designed to address environmental problems such as urban run-off and contaminated streams and rivers. Measuring the success of these efforts – employing improved data collection and measures that quantify the environmental and economic benefits of DEQ's technical assistance efforts - is a priority for DEQ.