

THE TOXIC GAP



How Oregon's Regulatory Programs Fail to Protect Human Health from Toxic Chemicals

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How Oregon's Regulatory Programs Fail to Protect Human Health from Toxic Chemicals

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Oregon Environmental Council

Clean air

Clean water

Clear thinking

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EXECUTIVE SUMMARY

Invisible, yet highly toxic pollutants are regularly being released into Oregon's air and water. They are often entirely unregulated, despite the fact that these toxins persist in the environment for generations and can cause cancer, neurological damage, lowered intelligence and other serious health problems.

The Oregon Environmental Council (OEC) investigated the state Department of Environmental Quality's (DEQ) programs for regulating the emissions of three highly toxic chemicals – dioxin, lead and mercury – and found gaping holes in those programs.

The Oregon DEQ is charged with regulating the release of chemicals from industrial sources (often called "point" sources) through air and water permits. These permits are issued to individual facilities and are the primary regulatory tool that DEQ uses to ensure that pollution from these facilities is monitored and controlled.

OEC reviewed the 2001 Toxic Release Inventory (TRI) data for dioxin, lead and mercury, and compared reported releases of these chemicals to the air and water permits issued to these facilities by DEQ.

We found that dozens of industrial facilities are releasing dioxin, lead and mercury to Oregon's air and/or water without permit limits for those pollutants. Without a permit limit, there are no testing requirements and no regulatory limits for these persistent pollutants.

Specifically, we found that:

- Of the 20 facilities reporting dioxin releases to the air and/or water, **only one** holds a permit for its release of dioxin.
- Of the 48 facilities reporting lead releases to the air, 19 (almost 40 percent) are permitted to release lead to the air. Of the 18 facilities reporting lead releases to water, only five (or less than one third) are permitted to

release lead to water.

- Of the 10 facilities reporting mercury releases to the air and/or water, **not one** is permitted to release mercury.

These results show that DEQ is failing to protect the public from some of the most dangerous toxic chemicals. Through a series of regulatory loopholes, most industrial facilities in Oregon are operating with air and/or water permits that do not include limits for the toxic pollutants that they are known to be releasing to the environment. Since the air and water permitting programs are DEQ's primary regulatory tools to control the release of toxic chemicals, this permit gap is a significant environmental and public health concern.

DEQ has the authority to regulate emissions of these toxic chemicals, but the agency has failed to use it. In order to reduce and ultimately eliminate the release of these chemicals into Oregon's air and water, changes need to be made to the state's regulatory system so that these chemical releases are monitored and controlled. Specifically, OEC recommends that:

- DEQ should fill the state's toxic permit gap and ensure that pollutants like dioxin, lead and mercury are included in all applicable air and water permits.
- DEQ should develop an electronic emissions database searchable by chemical.
- DEQ staff should be required to refer to TRI reports for all of the facilities they permit.

Protecting human health and the environment from toxics is one of DEQ's four priority "Strategic Directions." This report highlights an area where DEQ has a real opportunity to achieve this goal by taking specific actions. By filling these toxic loopholes, DEQ will be able to achieve this goal through its existing permit program.

INTRODUCTION

Oregonians expect to be protected from dangerous toxic chemicals in the environment. The Oregon Environmental Council (OEC) investigated the state Department of Environmental Quality's (DEQ) programs for regulating the emissions of three highly toxic chemicals and found gaping holes in those protections.

Invisible, yet highly toxic pollutants are being released into Oregon's air and water. They are often entirely unregulated, despite the fact that these toxins persist in the environment for generations and can cause cancer, neurological damage, lowered intelligence and other serious health problems in people.

This report focuses on three highly toxic pollutants: dioxin, lead and mercury. Dioxin and mercury are "persistent bioaccumulative toxins" (PBTs). Once released into the environment, these chemicals, which can move easily between air, water and soil, do not break down. In fact, they increase in concentration as they move up the food chain. Lead is similar to dioxin and mercury in that it is highly toxic and persists in the environment; however, it does not increase in concentration through the food chain like dioxin and mercury.

The Oregon DEQ is charged with regulating the release of chemicals from industrial sources (often called "point" sources) through air and water permits. These permits are issued to individual facilities and are the regulatory tool DEQ uses to ensure that pollution from these facilities is monitored and controlled. Through its permitting system, DEQ has a legal handle with which to respond if a facility releases more than its permit limit allows.

Information about chemical releases to the environment is available through a federal program called the Toxic Release Inventory (TRI). Most industrial facilities in Oregon are required to report their release of toxic chemicals to the U.S. Environmental Protection Agency (EPA) under the TRI program. OEC

reviewed the latest available TRI data for dioxin, lead and mercury and compared reported releases of these chemicals to the air and water permits issued to these facilities by DEQ. What we found is disturbing – dozens of industrial facilities are releasing dioxin, lead and mercury to Oregon's air and/or water without permit limits for those pollutants.

METHODOLOGY

OEC searched the 2001 Toxic Inventory Release (TRI) data for sources of “dioxin and dioxin-like compounds,” “lead” and “lead compounds,” and “mercury” and “mercury compounds” in the state of Oregon. The year 2001 data are the most recent data available.

OEC chose to focus on dioxin, lead and mercury for this report because they are three of the 12 persistent, bioaccumulative and toxic (PBT) chemicals prioritized by the U.S. EPA that are still being released to the air and/or water in Oregon (see sidebar). Five of the 12 PBTs are banned pesticides, and the other four chemicals are either not reported to the TRI or are not released by any industries in Oregon.

The TRI is a national, publicly available database that contains information on toxic chemical releases by industrial facilities, or “point sources.” This inventory was established under the Federal Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990.

Under the law, certain facilities with 10 or more employees must report their environmental releases of any of the 650 toxic chemicals on the TRI list to the U.S. EPA. Facilities are required to use their best readily available data to calculate their releases to air, water and land. *They are not required to actually test their emissions for TRI reporting.* Furthermore, there is no relationship between the TRI program and the state’s permitting system.

EPA recently expanded the TRI by including new PBT chemicals, and lowered the reporting thresholds for PBTs. For a subset of PBT chemicals – including mercury – EPA set a reporting threshold of 10 pounds a year. For dioxin and dioxin-like compounds, EPA set an even lower threshold of 0.1 grams per year. Beginning in the 2001 reporting year, EPA also lowered the threshold for lead from 10,000 to 100 pounds a year.

After conducting the TRI search, OEC reviewed the air and water permits for each facility that reported air or water releases of the three chemicals. OEC obtained these permits from DEQ, communicated directly with DEQ permit writers, and used the DEQ Facility Profiler (see <http://deq12.deq.state.or.us/fp20/>) to look at dioxin, lead and mercury permit limits for the facilities reporting to TRI.

U.S. EPA’s List of “Priority PBTs”

EPA identified 12 PBTs from the list of level 1 substances from the U.S. Binational Toxics Strategy:

Banned Pesticides

- aldrin/dieldrin
- chlordane
- DDT and its metabolites
- mirex
- toxaphene

Other Chemicals

- benzo(a)pyrene
- dioxins and furans
- hexachlorobenzene
- alkyl-lead
- mercury and its compounds
- octachlorostyrene
- PCBs

MAJOR FINDINGS: MOST SOURCES UNREGULATED

By comparing the data from the TRI report to the air and water permits for those facilities, we found that of the 32 reported releases of dioxin and mercury to air and water, **only one** release (3 percent) is permitted by DEQ. (While the two municipal solid waste incinerators in Oregon have permit limits for mercury and dioxin, they are exempt from TRI reporting.)

In contrast, we found that of the 66 reported lead releases to the air and/or water, 24 are permitted by DEQ (36 percent).

Specifically, our analysis shows that:

- Of the 20 facilities reporting dioxin releases to the air and/or water, **only one** holds a permit for its release of dioxin (see Table 1).
- Of the 48 facilities reporting lead releases to the air, 19 (almost 40 percent) are permitted to release lead to the air. Of the 18 facilities reporting lead releases to water, only five (or less than one third) are permitted to release lead to water (see Table 2).
- Of the 10 facilities reporting mercury releases to the air and/or water, **not one** is permitted to release mercury. (See Table 3.)

The fact that lead is more commonly permitted than dioxin or mercury is due primarily to the fact that lead is considered a “priority pollutant” by EPA and, as such, is automatically included in many permits. While some of the permit limits for lead are quite high (for example, Oregon Steel is permitted to release 10,000 pounds of lead in a year), the fact that these facilities have limits in their permits means that testing is more likely to occur on some regular basis, and DEQ has some controls over the emissions of this chemical.

OTHER FINDINGS

In addition to the major finding described above, we also found three other key issues of concern:

- **DEQ is failing to include permit limits for some facilities that should be permitted under existing rules.**
According to DEQ’s current air rules, if a facility releases 200 or more pounds of lead in a year, then that facility is required to have a Plant Site Emission Limit (PSEL) for lead. However, we found three facilities with no air permit limit for lead despite the fact that they reported releasing more than

Summary of Findings

	Dioxin	Lead	Mercury
Number of Chemical Releases Reported to TRI	21	66	11
Number of Reported Releases Permitted by DEQ	1	24	0
Percentage of Releases Permitted by DEQ	5%	36%	0%

200 pounds of lead to air in 2001. We also found that the top seven releasers of lead to water are not permitted to release lead to water.

- **Lack of testing can result in poor TRI reporting.** In three cases, facilities had reported releases of either lead or dioxin that were at higher levels than they were permitted to release. However, when OEC contacted these facilities about this discrepancy, we found that the facility had apparently made an error in their TRI reporting. We also found that some facilities may be under-reporting their releases. For example, Cascade Steel reported releasing one pound of mercury to the air in 2001; however, DEQ estimates that Cascade Steel releases between 70 and 210 pounds of mercury per year.
- **DEQ's permitting program seems to lack consistency.** Particularly for lead, there seems to be a lack of consistency in DEQ's permitting practices. For example, Boise Cascade reported similar levels of lead released to the air from two of its facilities in Oregon, yet only one of those facilities has an air permit limit for lead.

UNDERSTANDING THIS TOXIC LOOPHOLE

As this report demonstrates, there are dozens of industrial facilities in Oregon that release dioxin, lead and mercury to the air and/or water, yet these pollutants are not covered by most of the air and/or water permits issued to these facilities by the DEQ. Without a permit limit, there are generally no testing requirements and no regulatory limits on these emissions.

DEQ is responsible for implementing Oregon's air and water laws. One way they achieve this is by issuing and enforcing air and water permits. These permits are issued to individual facilities and are the regulatory tool that DEQ uses to ensure that pollution from these facilities is monitored and controlled. In most cases, Oregon law simply follows federal law, so little is required here in Oregon that is more stringent or more environmentally protective than required by the federal government.

However, existing Oregon law gives DEQ broad authority to monitor and regulate these discharges. For example, DEQ has the authority under existing air quality rules to require the owner or operator of a stationary source to determine the type, quantity and duration of emissions from any air contamination source. Under this rule, DEQ may also require continuous monitoring of a specified air contaminant.

DEQ uses two separate and distinct regulatory programs to regulate the discharge of chemicals to air and water. These two programs are described in more detail below.

AIR

In Oregon, the DEQ implements the federal Clean Air Act, administering what are known as "Title V" permits. These permits are required **only** for facilities that emit 10 tons per year or more of any individual hazardous air pollutant ("HAP") or 25 tons per year of any combination of HAPs. Oregon facilities with air emissions that fall under the threshold for the federal Title

V permit program are required to get a state Air Contaminant Discharge Permit (ACDP).

The federal Clean Air Act directs the U.S. EPA to regulate a set of 188 hazardous air pollutants, including dioxin, lead and mercury. EPA regulates the discharge of these HAPs by requiring certain types of facilities to use "maximum achievable control technology" ("MACT"). These MACT standards, which are technology-based performance standards, are applied to "source categories," which are categories of industrial facilities such as pulp and paper manufacturing or iron and steel manufacturing, for example.

For the vast majority of Title V permit holders in Oregon, no MACT standard exists for hazardous air pollutants such as dioxin, lead and mercury. The only two facilities in Oregon with Title V permits that include limits for mercury and dioxin are the municipal solid waste incinerators in the city of Brooks and Coos County.

One of the primary regulatory tools DEQ uses to control air emissions is called the Plant Site Emission Limit (PSEL). All ACDP and Title V sources are subject to PSELs. However, current DEQ rules allow the agency to establish a PSEL for a facility only when that facility releases 1 ton (2,000 pounds) or more of one or more hazardous air pollutants in a year. As a result, DEQ has not required monitoring or established emission limits for any of the 188 HAPs on the EPA list.

The only exception to this gap is for lead. If a facility releases 200 pounds or more of lead, then that facility is required to have a PSEL for lead. Due to this lower regulatory threshold, many of the facilities that reported lead releases to the air do have permits that include limits for lead. Nonetheless, we found that there were three facilities reporting air releases of more than 200 pounds of lead which have been issued NO permit limit for lead.

WATER

Under the Clean Water Act, facilities that release pollutants to surface water are required to get a National Pollutant Discharge Elimination System (NPDES) Permit. There are different types of NPDES permits depending on the nature of the potential or actual pollutant discharge.

DEQ regulates 164 industrial dischargers and 209 municipal wastewater sewage treatment plants through individual permits that set limits on pollutants discharged. In addition, approximately 1,314 facilities have what are known as “general permits,” and 1,640 facilities are covered by storm water general permits. These storm water permits may include “benchmarks” for three specific chemicals of concern (lead, copper and zinc), but not “permit limits.” Permit limits are enforceable, while benchmarks are not.

When issuing a wastewater discharge permit, the DEQ permit writer conducts an analysis to determine if the facility is likely to be releasing a particular pollutant at levels that would exceed water quality standards in the “receiving waters.” This analysis, called a “reasonable potential analysis,” helps DEQ decide if they are going to include a water quality-based effluent limit in a facility’s permit. If the statistical analysis tells DEQ a the facility is not likely to exceed water quality criteria, then DEQ will not include a permit limit for that pollutant.

The DEQ will also include a “technology based effluent limit” where federal rules establish effluent guidelines for a particular type of facility. When DEQ finds that both technology and water quality based limits are needed, then DEQ is required to use the most restrictive permit limit.

When a facility applies for a permit or a permit renewal, the company is required to tell DEQ what contaminants they are releasing, and DEQ bases the facility’s new permit conditions on that information. For a permit renewal, the facility is required to submit all monitoring test results from the last several years of operation, and where monitoring has not been conducted,

the facility has to submit three monitoring results.

Unfortunately, DEQ’s water quality permit program is suffering from a huge backlog. DEQ has allowed more permits to expire than any other state. As a result, many of the permits currently in place are based on an analysis that may have been conducted 10 or more years ago and probably did not include an analysis designed to evaluate compliance with human health criteria, which for chemicals like dioxin, lead and mercury are usually much more stringent than criteria for protecting aquatic life. These older permits also may not account for new, more efficient technologies.

Mixing Zones

A mixing zone is an area where chemical discharges mix with receiving water. This allows dischargers to dilute their concentration enough to meet water quality standards outside the mixing zone. Mixing zones, which are commonly used in Oregon, allow dischargers to exceed state water quality standards within their pre-defined “mixing zone” as long as the water quality criteria are met at the end of the mixing zone.

Mixing zones have been used for years as a way to enhance dischargers’ ability to meet water quality standards, and are based on the assumption that dilution will reduce the toxicity of the pollutants. However, pollutants that persist and bioaccumulate actually increase in concentration as they move up the food chain. Nonetheless, Oregon still permits the use of mixing zones for the discharge of PBTs.

Many states have recognized this problem and have begun phasing-out mixing zones for PBTs. In both the Great Lakes and the Chesapeake Bay, regulators are phasing out the use of mixing zones for PBTs. In the Great Lakes, the EPA is prohibiting new discharges of PBTs in the Great Lakes Basin and is phasing out existing mixing zones over a 10-year period (EPA, 2001). In the Chesapeake Bay, the Governors of Maryland, Virginia, and Pennsylvania, the EPA Administrator, the Administrator of the Chesapeake Bay Commission and the Mayor of District of Columbia have endorsed a voluntary mixing zone phase-out (Chesapeake Bay Program, 2001).

BACKGROUND ON DIOXIN, LEAD AND MERCURY

This report focuses on the sources of three highly toxic and persistent pollutants: dioxin, lead and mercury. Dioxin and mercury are “persistent bioaccumulative toxins” (PBTs). While lead does not bioaccumulate, it is persistent and is known to cause long-term health problems, especially for children.

DIOXIN

Dioxin compounds are a group of chemicals that are formed inadvertently by a number of human and natural activities. Dioxins are created by combustion, waste incineration, chlorine bleaching of pulp and paper, certain types of chemical manufacturing and processing and other industrial processes (Washington Department of Ecology, 2001).

Dioxin compounds bioaccumulate in the environment. Released into air or water, the chemicals attach to organic material and work their way into the food chain, magnifying in concentration along the way.

Even in tiny amounts, dioxins can cause harm. Dioxins are considered the most carcinogenic substances ever tested. In addition to being a cancer-causing agent, dioxin modulates and disrupts growth factors, hormones, enzymes, and developmental processes (WDOE, 2001). Exposure to dioxin may result in skin lesions, liver problems, and impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions (WHO, 1999).

Dioxins are linked to hormone disruption. Hormones regulate many processes in the body, including sexual development, reproduction and growth. Hormone-disrupting chemicals are of particular concern because the health effects show up not in the exposed parents, but in their offspring. Unfortunately, it takes only infinitesimal amounts of a hormone

disruptor like dioxin to disrupt the significant processes that hormones control.

LEAD

People are exposed to lead primarily by breathing and ingesting it in food, water, soil or dust. Lead accumulates in blood, bones, muscles and fat. Infants and young children are especially sensitive to even low levels of lead. Exposure to low levels of lead can damage the brain and nerves in fetuses and young children, resulting in learning deficits and lowered IQ (EPA, 2003).

Exposure to lead in adults may lead to decreased reaction time, affected memory, weakness in the fingers wrists or ankles, increased blood pressure in men and/or anemia. Pregnant women exposed to lead have a higher risk of bearing children with birth defects. High exposure levels to either adults or children may lead to brain and kidney damage.

Lead can enter surface water through runoff and from sewage and industrial waste streams. Elevated levels of lead in the water can cause reproductive damage in some aquatic life, and cause blood and neurological changes in fish and other animals that live there (EPA, 2003).

MERCURY

Mercury is well-known as a potent neurotoxin. Mercury can slow fetal and child development and cause irreversible deficits in brain function. Young children and fetuses are the most vulnerable to the toxic effects of mercury, with exposure leading to irreversible damage to the brain and nervous system, resulting in delayed walking, impaired language skills, impaired memory, and deficient brain function. Mercury has been targeted by international, federal, state, provincial and local governments as one of the most critical pollutants for elimination or

reduction.

When mercury is released to the air, it is ultimately deposited into a lake or river by rain, snow or dry deposition, where bacterial processes convert much of it to methylmercury, the most toxic form of mercury. Fish absorb methylmercury from their food and from water as it passes over their gills.

The most common form of mercury exposure in humans is through fish consumption. Mercury is the number one reason for fish consumption advisories in the state of Oregon and throughout the United States. The Oregon Health Division has issued fish advisories due to mercury pollution for 11 lakes and rivers in Oregon, including the entire main-stem of the Willamette River.

Even small quantities of mercury released to the air can cause significant fish contamination. For example, officials from the state of Minnesota found that about a gram of mercury (0.002 pounds) deposited in a 20-acre lake is enough to contaminate the lake so the fish are unsafe to eat.

Some of the human-made sources of mercury are power plants that burn coal, cement kilns, steel mills, crematories and solid waste incinerators.

Under the Clean Water Act, the Willamette River is considered to be 303(d) limited for mercury. As a result, DEQ is developing a Total Maximum Daily Load (TMDL) for mercury in the Willamette River.

OTHER STATES TACKLE THE PROBLEM

Several other states have taken action to limit the release of mercury, lead and dioxin. Much of the activity in other states has focused on efforts to reduce mercury emissions. For example, several states have instituted rules and regulations to control the discharge of mercury to the air from facilities that are not regulated for mercury by the U.S. EPA. Below are some specific state actions to control the release of these toxins:

- The State of **Maine** prohibits a mill from discharging dioxin into its receiving waters (detection level is 10 picograms per liter) after December 31, 2002 (Maine, 2003).
- The State of **New Hampshire** has created a *Dioxin Reduction Strategy* that identifies over 20 source categories of dioxin releases and makes over 50 recommendations for reducing dioxin exposure (New Hampshire DES, 2001).
- The State of **California**'s Air Resources Board (CARB) has created guidelines to assist local air districts when permitting sources of lead emissions. Each district is required to set strict standards for lead; if the district fails to do so, the state board will then establish lead standards for that district (CARB, 2001).
- The State of **Maine** prohibits any facility from emitting more than 50 pounds of mercury per year to the air after January 1, 2004. Compliance with this requirement must be specified in air permits. New regulations also prohibit any discharge to water if that discharge would increase concentrations of mercury in receiving waters. Facilities with NPDES permits with mercury limits are required to develop pollution prevention plans (Maine, 1997; ECOS, 2001).
- The **Massachusetts** Department of Environmental Protection found that control of mercury emissions from coal-fired power plants is feasible and plans to develop an emission standard (Mass DEP, 2002).
- The State of **Minnesota** passed a law in 1999 that requires the Pollution Control Agency to solicit voluntary agreements from companies that release over 50 pounds of mercury per year. The agency has also imposed or negotiated mercury emission limits in permits on a case-by-case basis using its broad regulatory authority (MPCA, 2002).
- The State of **Michigan** issued a permit for a scrap metal shredder facility that established emission limits for mercury and requires the facility to remove and properly dispose of all mercury-containing devices from vehicles, appliances and industrial machinery prior to shredding (Michigan DEQ, 2001). In addition, facilities with a water permit limit for mercury are required to develop and implement a mercury source elimination program to reduce the amount of mercury being discharged (ECOS, 2001).
- The State of **Ohio** is requiring certain facilities in the state to conduct tests for mercury emissions. The Ohio EPA began requiring testing after routine emissions testing in mid-1999 showed that steel scrap processing facilities were likely a significant source of mercury pollution (Ohio EPA, 2001).
- The State of **Wisconsin** has proposed a new rule to significantly reduce mercury emissions. The goal of the rule is to reduce mercury air emissions in Wisconsin by setting mercury ceiling levels for large sources, requiring major utilities to reduce emissions in phases of 30, 50 and 90 percent over 15 years, and require new sources to offset increases in mercury emissions (Wisconsin Department of Natural Resources, 2003).

CONCLUSION:

GAPS IN DEQ'S PERMITTING PROGRAMS FAIL TO PROTECT OREGONIANS HEALTH AND ENVIRONMENT

Oregonians expect to be protected from dangerous toxic chemicals in the environment. OEC's investigation of DEQ's programs responsible for regulating the emissions of these chemicals found gaping holes in those protections.

OEC found that only one of the 32 releases of mercury and dioxin are permitted by DEQ. This is happening despite the well-established environmental and human health dangers associated with mercury and dioxin. For lead, another highly toxic and persistent chemical, DEQ has set numeric permit limits for only 36 percent of facilities that reported releasing lead to the air and/or water.

These results show that DEQ is failing to protect the public from some of the most dangerous toxic chemicals. Through a series of regulatory loopholes, most industrial facilities in Oregon are operating with air and/or water permits that **do not include** limits for the toxic pollutants that they are known to be releasing to the environment. Since the air and water permitting programs are DEQ's primary regulatory tools to control the release of toxic chemicals, this permit gap is a significant environmental and public health concern.

While DEQ has the authority to regulate these emissions, the agency has not used it. In order to reduce and ultimately eliminate the release of these chemicals into Oregon's air and water, changes need to be made to the state's regulatory system so that these chemical releases are monitored and controlled.

Protecting human health and the environment from toxics is one of DEQ's four priority "Strategic Directions." This report highlights an area where DEQ has a real opportunity to achieve this goal by taking specific actions. By

filling these toxic loopholes, DEQ will be able to achieve this goal through its existing permit program.

RECOMMENDATIONS

1. DEQ should fill the state's toxic permit gap and ensure that pollutants like dioxin, lead and mercury are included in all applicable air and water permits.

DEQ has the authority to fill this toxic permit gap. DEQ can and should fill this gap and:

- Require all facilities that would be expected to release any persistent pollutants to regularly monitor their air and water discharges for those pollutants;
- For air discharges, set permit limits for all persistent pollutants and require reductions over time; and
- For water discharges, issue permit limits for all PBTs that do not allow for mixing zones.

To control air emissions of these toxic chemicals, DEQ should first use its existing authority to require all facilities that release dioxin, lead and mercury to regularly monitor their emissions.* Without actual monitoring, there is a huge gap in our knowledge about the levels being discharged by industrial facilities in Oregon.

DEQ should then initiate a rule change to establish air emission limits for mercury and dioxin. DEQ can do this by amending OAR 340-222 and OAR 340-200 to establish Plant Site Emission Limits (PSELs) for mercury and dioxin for any facility that discharges a certain *de minimis* amount of mercury and dioxin. Setting a *de minimis* level of 10 pounds for mercury and 0.1 grams for dioxin will allow permit writers to develop PSELs for these toxins. The existing *de minimis* level of one ton of a single HAP is entirely inappropriate for chemicals like dioxin and mercury.

DEQ has the authority to take these steps under several of the laws and rules that govern its policies. For example, the Policy and Purpose language in Division 244 states that it “shall be the policy of the Commission that no person may cause, allow or permit emissions into the ambient air of any hazardous substance in such quantity, concentration or duration determined by the Commission to be injurious to public health or the environment.” (See OAR 340-24-0010.)

For its water quality program, DEQ should develop permit limits that are protective of human health for all facilities that would be expected to release persistent pollutants, regardless of the results of a “reasonable potential analysis.” This also means that DEQ's current policy of allowing “mixing zones” for PBTs needs to be changed, as the assumption that dilution is appropriate for chemicals that bioaccumulate is inherently flawed.

Lastly, water quality permits need to be brought up to speed, and the Legislature should ensure that DEQ has the funds necessary to do this. Also, the agency should focus on updating the permits for facilities that release persistent, bioaccumulative and toxic chemicals.

Once these air and water permits are issued, DEQ should develop a strategy to ensure that emissions are reduced over time.

2. DEQ should develop an electronic emissions database searchable of permit-related data by chemical.

The public can now search for **very basic** information about facilities and their DEQ air permits on DEQ's facility profiler database. However, this database includes little to no information about the toxic chemicals permitted

* DEQ has the authority under OAR 340-212-0120 to require the owner or operator of a stationary source to determine the type, quantity and duration of emissions from any air contamination source. Under this rule, DEQ may also require continuous monitoring of a specified air contaminant.

to be released (with the key exception that for air quality permits, one can retrieve information for some facilities about plant site emission limits for priority pollutants, which includes lead). Further, there is no centralized location or repository that catalogs the results of monitoring or source testing done by facilities. If one wants to know the results of monitoring conducted for any particular pollutant, one would have to review hard copy files for individual facilities (which are maintained in DEQ's regional offices).

DEQ should promptly begin to require electronic filing of discharge reports, and should make these data readily available and searchable by chemical. This information should be included in the database so interested community members could search permits and monitoring results by chemical, as well as by facility and facility type. With a centralized location for permit limits and monitoring data on a chemical-by-chemical basis, both the public and all DEQ staff will be better equipped to assess the total load of a particular chemical in the state.

3. DEQ staff should be required to refer to TRI reports for all the facilities they permit.

In conducting research for this report, OEC found that DEQ permit managers may not be aware of the TRI reports filed by the facilities that they permit. In fact, one permit manager we spoke to had not even heard of TRI!

When writing permits, permit managers should have TRI information to compare to permit applications. For example, we found the top seven releasers of lead to water in 2001 are not permitted to release lead to water. If DEQ staff were paying attention to TRI reports, they would see that the facilities they permit are actually releasing more of a particular chemical than they might have thought or been previously led to believe.

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Table 1. DIOXIN Releases Reported to TRI in the Year 2001 by Oregon Facilities

<i>Facility</i>	<i>Location</i>	<i>Reported Dioxin Releases (grams/yr)</i>	<i>Permitted to Discharge by DEQ?</i>	<i>Permit Limit (grams/yr)</i>
AIR				
Boardman Plant	Boardman	3.85	No	
Ft. James Operating Co.	Clatskanie	0.93	No	
SP Newsprint *	Newberg	0.79	No	
Roseburg Forest Products	Dillard	0.64	No	
Weyerhaeuser	Springfield	0.59	No	
Boise Cascade Corp.	St. Helens	0.58	No	
Georgia Pacific West	Toledo	0.39	No	
Boise Cascade Corp.	Medford	0.24	No	
Pope and Talbot	Halsey	0.21	No	
Willamette Industries	Albany	0.21	No	
Roseburg Forest Products	Riddle	0.20	No	
Boise Cascade Corp.	Elgin	0.12	No	
Roseburg Forest Products	Coquille	0.11	No	
Crown Pacific Ltd. Ptnr.	Gilchrist	0.09	No	
Ash Grove Cement	Portland	0.07	No	
Ash Grove Cement	Durkee	0.05 **	Yes	0.091
West Linn Paper Co.	West Linn	0.03	No	
WATER				
J.H. Baxter & Co.	Eugene	1.308	No	
L.D. McFarland	Eugene	0.915	No	
West Linn Paper Co.	West Linn	0.597	No	
Permapost Products	Hillsboro	0.164	No	
TOTAL RELEASES REPORTED TO TRI (grams/yr)				
Total Dioxin Released to Air		9.027		
Total Dioxin Released to Water		2.984		
Total Air & Water Releases		12.011		

NOTE: The releases reported to TRI are totals for 17 dioxin congeners, not just 2,3,7,8-TCDD

*SP Newsprint is also known as Smurfit Newsprint

** Ash Grove originally reported 2.51 grams of dioxin, but later found that this number was in error and submitted a revision to EPA. Ash Grove estimates that actual dioxin emissions total 0.05 grams per year.

Table 2. LEAD Releases Reported to TRI in the Year 2001 by Oregon Facilities

<i>Facility</i>	<i>Location</i>	<i>Reported Lead Releases (lbs/yr)</i>	<i>Permitted to Discharge by DEQ?</i>	<i>Permit Limit (lbs/yr)</i>
AIR				
SP Newsprint Co. Newberg Mill	Newberg	1,500	Yes	3,000
Cascade Steel Rolling Mills	McMinnville	1,464	Yes	2,600
Oregon Steel Mills	Portland	1,409	Yes	10,000
Collins Prods. L.L.C.	Klamath Falls	663	No	
Kingsford Manufacturing Co.	Springfield	330	No	
Owens-Brockway Glass Container Inc.	Portland	226	No	
Roseburg Forest Products	Dillard	218	Yes	400
Boardman Plant (PGE)	Boardman	142 ¹	Yes	340
Georgia-Pacific West Inc.	Toledo	100	Yes	240
Johnson Controls Battery Group Inc.	Canby	76	Yes	280
Boise Cascade Corp.	Elgin	52	No	
Boise Cascade Corp.	St. Helens	45	Yes	400
Valmont Coatings	Tualatin	44	No	
Pope & Talbot Inc. Halsey Pulp Mill	Halsey	34	No	
Fort James Operating Co.	Clatskanie	33	Yes	200
Weyerhaeuser Co.	North Bend	30	Yes	140
Blue Heron Paper Co.	Oregon City	28	Yes	800
West Linn Paper Co.	West Linn	28	No	
Stimson Lumber Co.	Gaston	27	No	
Tillamook Lumber Co.	Tillamook	24	No	
TMT-Pathway L.L.C.	Salem	24	No	
Weyerhaeuser Co. ²	Springfield	22	Yes	400
Ash Grove Cement	Durkee	17 ³	Yes	48
Willamette Industries Inc.	Albany	17	Yes	60
GE Interlogix Inc.	Corvallis	14	No	
Columbia Plywood Corp.	Klamath Falls	11	No	
Behlen Manufacturing Co.	Baker City	10	No	
Cascade General Inc.	Portland	9	No	
Esco Corp.	Portland	9	Yes	2,000
Weyerhaeuser Co.	Warrenton	8	No	
Weyerhaeuser Co.	Veneta	7	Yes	16
Armstrong World Inds. Inc.	St. Helens	6	No	
Ash Grove Cement	Portland	6	No	
GE Interlogix Inc.	Tualatin	6	No	
Amalgamated Sugar Co. L.L.C.	Nyssa	4	Yes	120
Boise Cascade Corp.	Medford	4	Yes	200
Fort Hill Lumber Co.	Grand Ronde	4	No	
Willamina Lumber ⁴	Willamina	3	No	
Exceltech, Inc.	McMinnville	2	No	
Intel Corp. Ronler Acres Campus	Hillsboro	2	No	
Loxcren Co. Inc.	Hubbard	2	No	
Radisys Corp. Dawson Creek	Hillsboro	2	No	
Benchmark Electronics	Beaverton	1	No	
Evanite Fiber Corp. Hardboard Div.	Corvallis	1	No	
Galvanizers Co.	Portland	1	No	
Tyco Printed Circuit Group	Dallas	1	No	
Weyerhaeuser Co. Springfield Plywood ⁵	Springfield	1	Yes	60
	Sweet			
Weyerhaeuser Co.	Home/Foster	1	No	

WATER				
Georgia-Pacific West Inc.	Toledo	1,900	No	
SP Newsprint Co. Newberg Mill	Newberg	510	No	
Willamette Industries Inc.	Albany	207	No	
Fort James Operating Co.	Clatskanie	156	No	
Weyerhaeuser Co., Springfield ²	Springfield	124	No	
Blue Heron Paper Co.	Oregon City	95	No	
Pope & Talbot Inc. Halsey Pulp Mill	Halsey	44	No	
TDY Ind. Inc.	Albany	32	Yes	548
Cascade General Inc.	Portland	13	Yes	(not able to calculate)
Oregon Steel Mills Inc.	Portland	9	Yes	(not able to calculate)
Boise Cascade Medford Ops.	Medford	8	No	
Cascade Steel Rolling Mills Inc.	McMinnville	2	Yes	58
Electronic Controls Design Inc.	Mulino	2	Yes	(not able to calculate)
Weyerhaeuser Co. North Bend Containerboard	North Bend	2	No	
Galvanizers Co.	Portland	1	No ⁶	
West Linn Paper Co.	West Linn	1	No	
Weyerhaeuser Co. Springfield Plywood ⁵	Springfield	1	No	
Weyerhaeuser Co. Warrenton Lumber Mill	Warrenton	1	No	
TOTAL RELEASES REPORTED TO TRI (lbs/yr)				
Total Lead Releases to Air		6,509		
Total Lead Releases to Water		3,108		
Total Air and Water Releases		9,617		

We were not able to calculate an annual permit limit in pounds per year because DEQ's permit limits for certain facilities are expressed in terms that cannot be translated to pounds per year with any level of certainty.

¹ PGE originally reported 1,046 lbs of lead released to the air in 2001 based on a generic emission factor. After being contacted by OEC, PGE took a closer look at this calculation and used a more specific emission factor to calculate a new lead number of 142 lbs per year. PGE is submitting an official change to EPA to reflect this adjustment on the TRI.

² Weyerhaeuser Co. Springfield, 785 N 42nd Drive

³ Ash Grove originally reported 179 pounds of lead, but later found that this number was in error and submitted a revision to EPA. Ash Grove estimates that actual lead emissions total 17 pounds per year.

⁴ Willamina Lumber is listed as Hampton Lumber Mills with DEQ

⁵ Weyerhaeuser Co. Springfield Plywood is listed as Willamette Industries with DEQ, located at 419 S 28th Street

⁶ No direct discharge; treated at city sanitary system

Table 3. MERCURY Releases Reported to TRI in the Year 2001 by Oregon Facilities

<i>Facility</i>	<i>Location</i>	<i>Reported Mercury Releases (lbs/yr)</i>	<i>Permitted to Discharge by DEQ?</i>
AIR			
Ash Grove Cement	Durkee	218	No
Boardman Plant	Boardman	217	No
Georgia-Pacific West Inc.	Toledo	39	No
Blue Heron Paper Co.	Oregon City	4	No
U.S. DOE Bonneville Power Admin. Celilo Converter Station	The Dalles	3	No
Willamette Industries Inc.	Albany	1	No
Weyerhaeuser Co.	Springfield	1	No
SP Newsprint Co. Newberg Mill *	Newberg	1	No
Cascade Steel Rolling Mills Inc.	McMinnville	1 **	No
Ash Grove Cement	Portland	1	No
WATER			
Blue Heron Paper Co.	Oregon City	3	No
TOTAL RELEASES REPORTED TO TRI (lbs/yr)			
Total Mercury Releases to Air		485	
Total Mercury Releases to Water		3	
Total Air and Water Releases		488	

*SP Newsprint is also known as Smurfit Newsprint.

** DEQ estimates that Cascade Steel emits between 70 and 210 lbs of mercury each year.

Sources for all three chemicals:

DEQ permits to individual facilities; DEQ Facility Profiler (<http://www.deq12.deq.state.or.us/fp20>) and Environmental Protection Agency, Toxic Release Inventory, 2001 (<http://www.epa.gov/tri>)