

# Oregon Household Hazardous Waste Report, 2008-2009

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State of Oregon  
Department of  
Environmental  
Quality



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## Oregon Household Hazardous Waste Report, 2008 – 2009

This report provides an overview of activities related to household hazardous waste (HHW) in Oregon during the years of 2008 and 2009. The report focuses on the accomplishments of the Oregon Department of Environmental Quality (DEQ), while also including information about programs operated by local governments and industry.

The overriding goal of the *Household Hazardous Waste Management Plan for the State of Oregon, 2005 – 2011* is to reduce the generation of household hazardous wastes and ensure the provision of HHW services addressing the highest risks first. This report is the second in a series of biennial reports on progress towards achieving this goal.

### Highlights

HHW collection opportunities have continued to expand. In 2009, 85% of Oregonians had access to at least one comprehensive HHW collection service – up from 82% in 2007. Similarly, the percentage of households with access to a permanent facility (offering multiple collection events throughout the year) rose from 64% in 2007 to 69% in 2009, as Deschutes County opened its permanent HHW facility in 2009.

During 2008 and 2009, DEQ continued to offer grants to help communities collect and manage their own HHW more effectively, while also continuing to provide collection events for households and conditionally exempt generators (CEGs) in those areas without locally-sponsored service.

Special efforts focused on collecting mercury from both households and businesses and cleaning out unneeded chemicals from school labs. DEQ-funded mercury collections rose significantly: 286 pounds of elemental mercury in 2008 and 2009 (compared to 213 pounds in 2006 and 2007) and 6,861 pounds of mercury compounds and mercury-containing goods in 2008 and 2009 (compared to 2,722 pounds in 2006/2007). Increased collections were due in part to Metro joining DEQ's "free mercury" collection program (in 2007) and increased advertising of the program in Lane County.

An important concept in the management of solid waste and HHW in particular is product stewardship, which means that all parties involved in designing, manufacturing, selling and using a product take responsibility for environmental impacts at every stage of that product's life. The Legislature adopted a paint product stewardship program (HB 3037) in 2009, the nation's first. Other product stewardship activity involved thermostats, fluorescent lamps, pharmaceuticals, and rechargeable batteries.

Declining revenue in DEQ's Solid Waste Program led DEQ to suspend or reduce many HHW program services at the end of 2009. Whether these changes reflect a temporary interruption of service, or a more permanent change, is not yet known.

## DEQ-Sponsored HHW Collections

In 2008 and 2009, DEQ sponsored eight household hazardous waste collection events which attracted 2,209 participants who disposed of their waste free-of-charge. The average amount of waste collected per participant was 101 pounds and included pesticides, mercury, paint products, automotive products, and cleaning products.

In 2007, DEQ made a significant change to how local communities were selected for these DEQ-sponsored events. Previously, communities were selected from a pool of applicants, which resulted in residents of some communities being underserved. Beginning in 2008, DEQ administered a “queue” of communities eligible for events based on criteria including population, distance from other services, and date of last event. If future funding allows, DEQ intends to work through the queue and provide events across the state, and then repeat the process.

Beginning in 2008, DEQ began advertising that participants should not bring latex paint to DEQ sponsored HHW events. Participants were advised to give away or dry their latex paint and dispose of it as solid waste, although DEQ continued to accept latex paint if it was delivered. The quantities of latex paint delivered at DEQ events fell significantly: from an average of 21 pounds/vehicle in 2007 (pre-change) to an average of 10 pounds/vehicle in 2009 (post-change). The result was a reduced amount of resources spent on latex paint management (a low hazard waste) and more resources available for management of high hazard wastes, such as mercury and pesticides.

Additional details regarding DEQ-sponsored collection events are provided in Appendix A of this report.

## Other Related DEQ Collection Programs

Conditionally exempt generator and pesticide waste collection: DEQ offered collection of conditionally exempt generator (CEG) and agricultural pesticide waste in conjunction with household hazardous waste events provided under DEQ contract. 51 CEGs and one agricultural pesticide generator used this service in 2008 and 2009. The participants pre-registered with DEQ’s contractor, Clean Harbors, and paid for disposal of the waste themselves. Additional details regarding these collections are provided in Appendix A of this report.

School lab cleanups: DEQ began a new program in 2009 to clean out unneeded chemicals from school labs. Under this program in 2009, 39 school labs in 6 counties were cleaned out and 25,844 pounds of unneeded school lab chemicals were collected. In addition, training sessions for teachers were held in each County on safer chemicals to use in their lab classes and the best ways to manage them.

Free mercury collection: DEQ continued to focus on increasing the collection of mercury and mercury-containing products.

- DEQ continued a program to collect mercury and mercury-containing goods free of charge from conditionally exempt generators at both locally sponsored and DEQ-sponsored collection programs.
- DEQ continued a program designed to collect elemental (liquid) mercury from homeowners in possession of 3 pounds or more of mercury. Under this program, DEQ’s contractor went to

individuals' homes to collect the mercury if the household was unwilling or unable to deliver the mercury to a permanent facility.

- DEQ also continued to offer a mercury thermometer exchange program, with goals of reducing the amount of mercury in homes, providing for proper disposal of mercury, and educating Oregonians about the dangers associated with mercury. At most locally sponsored and all DEQ-sponsored events, DEQ provided digital thermometers to participants who brought in mercury thermometers for disposal.

DEQ-funded mercury collections rose significantly: 286 pounds of elemental mercury in 2008 and 2009 (compared to 213 pounds in 2006 and 2007); 3,422 pounds of mercury compounds in 2008/2009 (compared to 1,965 pounds in 2006/2007); and 3,439 pounds of manufactured goods containing mercury in 2008/2009 (compared to 757 pounds in 2006/2007). Increased collections were due in part to Metro joining DEQ's "free mercury" collection program (in 2007) and increased advertising of the program in Lane County. Additional details regarding these collections are provided in Appendix A of this report.

### **Local Government HHW Collection Programs**

In addition to events offered by DEQ, many local governments in Oregon also provided HHW collection services in 2008 and 2009, either through permanent facilities, one-day events, or a combination of facilities and one-day events. Ten of these locally-sponsored one-day events in 2008 and 2009 were provided under DEQ's "purchaser program". This program allows local governments to use DEQ's HHW contract and contractor, although the local governments are responsible for paying for the service.

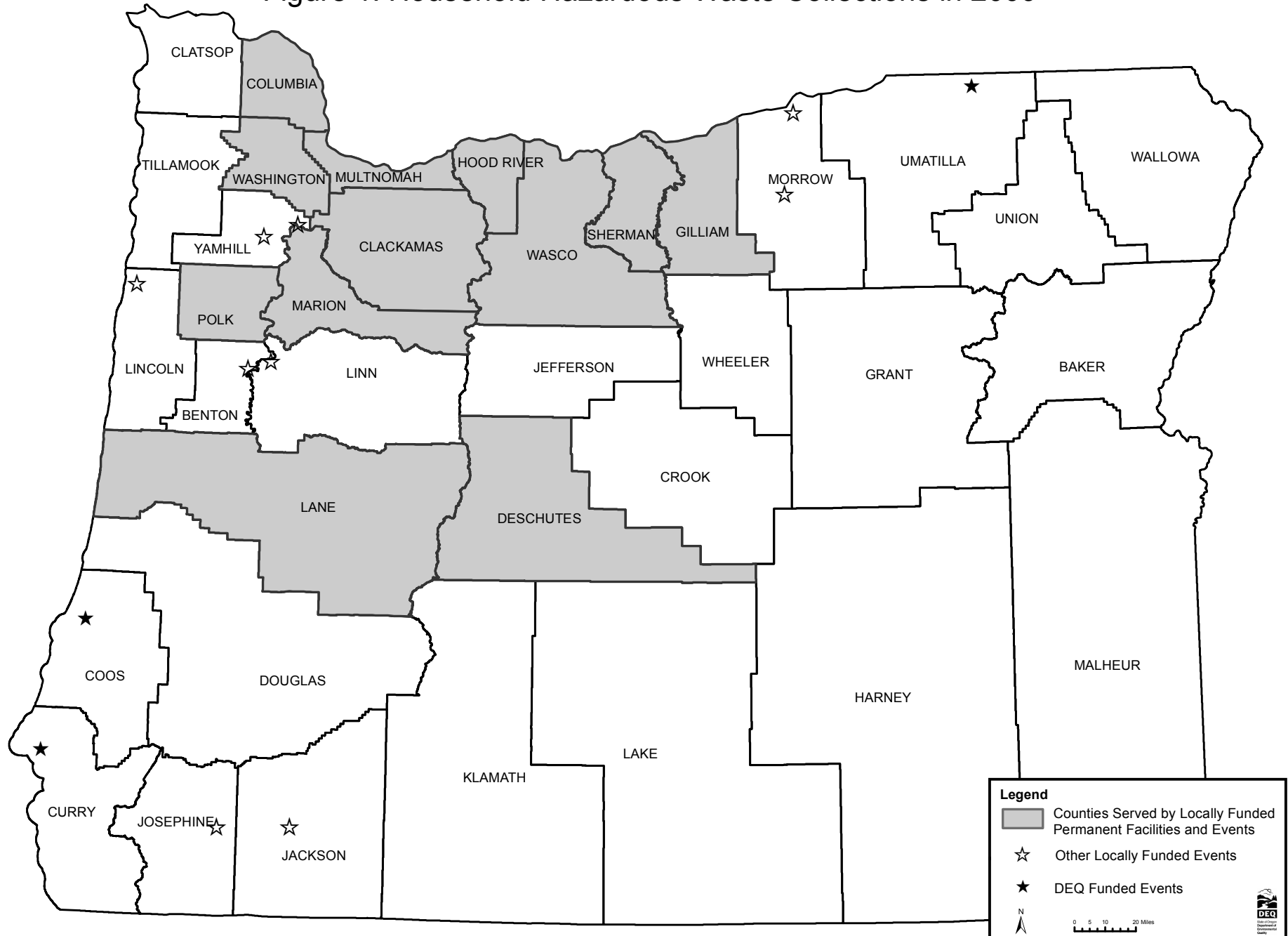
In 2008, DEQ awarded grants to help Crook County and the Union/Baker/Wallowa County consortium build facilities for the provision of HHW collection. Deschutes County, using a previously-issued DEQ grant, completed construction of its permanent HHW facility and opened it to the public in 2009.

### **Collection Opportunities Statewide**

Figure 1 graphically portrays the comprehensive HHW collection services provided to Oregon residents in 2009. As of December 2009, nine permanent facilities providing service multiple days a year (to residents of those counties shaded in grey) were open. In addition, all counties served by permanent facilities, with the exception of Deschutes, are also served by one-day "satellite" events that supplement the collection opportunities provided by the permanent facilities (typically in areas distant from those facilities). Outside of those counties, stand-alone collection events were provided in 12 other Oregon communities in 2009 (indicated by stars on Figure 1). Nine of these communities were served by locally-funded events. A few of these communities provided events on more than one day in 2009. The other 3 communities were served by one-day events funded by DEQ.

The percentage of Oregonians with convenient access to HHW collection services rose in 2009, compared to 2007. "Convenient access" is defined for three levels of service: a) permanent facility, b) any locally-operated service (facility or event), and c) any collection service (local facility or event, or DEQ-funded event). Increases in access were observed in all three categories: residents with access to permanent facilities (which tend to offer the highest level of convenience), residents with access to any local service, and residents with access to any service.

### Figure 1. Household Hazardous Waste Collections in 2009



**Legend**

- Counties Served by Locally Funded Permanent Facilities and Events
- ☆ Other Locally Funded Events
- ★ DEQ Funded Events

N

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November 2010 11-LQ-001

Figure 2 illustrates the number of Oregonians estimated to be served by each of these three classes of service, both on an absolute basis and also as a percentage of all Oregon residents.<sup>1</sup> Percentage results for 2007 are shown for comparison purposes.

**Figure 2.**  
**Summary of HHW Collection Opportunities, 2009 vs. 2007**

Service Level	Residents with convenient access, 2009		Residents with convenient access, 2007
	Number	Percent of Oregon's population	Percent of Oregon's population
Permanent facilities	2.624 million	69%	64%
All locally-funded services	3.185 million	83%	79%
All collection services	3.260 million	85%	82%

To summarize, 85% of Oregon residents in 2009 had convenient access to HHW collection service at least once during the year: either they lived in a county with a permanent HHW collection facility, lived in an adjacent county and within 20 miles of a facility that allowed them to use it, lived within 20 miles of a locally-funded event that allowed them to use it, or lived within 20 miles of a DEQ-funded collection event. This is an increase from the 82% of Oregon residents in 2007 that had similar access to HHW collection service. Not only has the total access increased, but the quality of access has increased as well. With the addition of Deschutes County's permanent HHW facility, 69% of Oregonians had convenient access to a permanent facility offering year-round collection services in 2009, up from 64% in 2007.

<sup>1</sup> Populations are estimated using GIS and the following standards:

- "Permanent facilities" include all residents with locally-funded access to the facility who live a) anywhere in the watershed where the facility is located, and b) outside of the watershed but within 20 miles of the facility (in the case of Polk and Sherman Counties, which do not have facilities in their watershed but do have locally-funded access to facilities in neighboring counties). Most of these residents are also served by "satellite" collection events that supplement the collection opportunities provided by the facilities.
- "All locally-operated services" include all residents served by permanent facilities as well as all other residents within 20 miles of a locally-funded event, assuming that the residents have locally-funded access to that event. One exception to this standard is the annual event in Albany, which in theory is only eligible to customers of Albany-Lebanon Sanitation. To simplify the analysis, we assume all residents of Linn County located within 20 miles of the event are eligible to participate.
- "All collection services" include all residents with convenient access to "locally-operated services" as well as Oregon residents not counted elsewhere who live within 20 miles of DEQ-funded collection events.

Figure 3. Selected Performance Data for Oregon HHW Collections, 2009

Service Area	Number of Household Vehicles	Estimated Pounds of HHW Collected							
		Acids & Bases	Oxidizers & Reactives	Mercury	PCBs/PCB Ballasts	Pesticides & Poisons	Oil-Based Paint	Other Flammables	Latex Paint
<b>Communities with Permanent Facilities (supplemented by satellite collection events)</b>									
Metro-South/Central	60,619	87,262	14,046	171	9,600	175,246	887,245	1,133,794	1,953,324
Lane County	5,436	10,162	2,699	605	2,330	25,250	55,242	51,539	51,564
Marion/Polk/Yamhill Counties*	4,242	8,664	1,075	451	424	25,130	89,660	86,100	382,160
Columbia County	910	3,456	426	30	720	12,200	15,420	17,665	23,360
Wasco/Hood River/ Sherman Counties**	983	2,428	284	11	221	10,314	17,732	16,977	0
Deschutes County	1,676	9,750	420	45	0	13,200	116,550	50,125	348,700
Gilliam County	11	0	0	0	0	440	440	440	1,840
<i>Subtotal</i>	<i>73,877</i>	<i>121,722</i>	<i>18,950</i>	<i>1,313</i>	<i>13,295</i>	<i>261,780</i>	<i>1,182,289</i>	<i>1,356,640</i>	<i>2,760,948</i>
<b>Communities with One-Day Events (only)</b>									
Albany	880	2,500	2,746	9	45	7,100	18,000	2,167	32,000
Corvallis	2,632	5,030	334	35	365	19,654	42,350	15,693	72,550
Boardman	68	47	0	7	901	2,502	1,837	10,861	1,021
Lincoln City	209	552	95	15	0	4,378	13,131	16,585	0
Lexington	42	80	0	4	29	1,308	2,023	5,260	1,580
White City	766	0	389	28	2,236	3,391	22,802	44,563	108,370
Grants Pass***	311	1,550	234	50	0	4,125	12,900	15,552	6,740
<i>Subtotal</i>	<i>4,908</i>	<i>9,759</i>	<i>3,798</i>	<i>148</i>	<i>3,576</i>	<i>42,458</i>	<i>113,043</i>	<i>110,681</i>	<i>222,261</i>
<b>DEQ-Sponsored Events</b>									
Milton-Freewater	57	153	8	10	0	3,201	1,645	671	0
Coos Bay	954	1,792	110	18	490	20,153	36,424	22,010	9,393
Port Orford	194	314	37	6	0	4,568	6,793	3,052	2,507
<i>Subtotal</i>	<i>1,205</i>	<i>2,259</i>	<i>155</i>	<i>34</i>	<i>490</i>	<i>27,922</i>	<i>44,862</i>	<i>25,733</i>	<i>11,900</i>
<b>TOTALS</b>	<b>79,990</b>	<b>133,740</b>	<b>22,903</b>	<b>1,495</b>	<b>17,361</b>	<b>332,160</b>	<b>1,340,194</b>	<b>1,493,054</b>	<b>2,995,109</b>

\* Yamhill County residents are not served by the Marion County permanent facility, but some waste from Yamhill County events is delivered to the Marion County facility, making it difficult to separate data from these counties.

\*\*Wasco/Hood River/Sherman Counties do not collect latex paint.

\*\*\*Grants Pass mercury collected includes metallic mercury, mercury compounds, thermometers and batteries. No fluorescent tubes or bulbs were included.

## Use of Collection Opportunities

Figure 3 illustrates the number of household vehicles delivering HHW to collection events across the state in 2009, and the estimated quantities of selected categories of HHW collected. Almost 80,000 household vehicles delivered HHW to collection facilities and events in 2009, up 4% from 2007. Assuming each vehicle represents one unique household for the year (no repeats, no bundling of waste from neighbors), and that the average household has 2.5 residents, this translates into more than 199,000 Oregonians, or 5% of the state's population, whose households used HHW collection services in 2009.

Figure 3 does not include all of the types of wastes collected by HHW programs around the state, and does not represent a "grand total" of all HHW collected. Several large waste categories are not shown, including motor oil, automobile and other batteries, and consumer electronics. Among these large waste categories, HHW services represent a small percentage of total statewide collections (typically less than 10%). In contrast, there were limited (if any) household collection opportunities for most of the wastes included in Figure 3.

Additional information on data sources and assumptions used in the development of Figure 3 is provided in Appendix B.

## Market Change and Product Stewardship

The *Household Hazardous Waste Management Plan for Oregon* shifted DEQ's focus from primarily collecting hazardous wastes toward a new emphasis on market change and product stewardship. Market change involves minimizing the use of hazardous materials in consumer products and product stewardship aims to reduce the environmental and public health impacts of products through all life cycle phases, including end-of-life.

DEQ has been a participant in the national Paint Product Stewardship Initiative since 2003 in an effort to develop a nationally coordinated system to collect leftover paint. In 2007 DEQ signed on to a Memorandum of Understanding (MOU) which identified Oregon to be in the first tier of states to begin the collection system. In 2009, the Oregon Paint Product Stewardship (HB 3037) passed and became the nation's first program requiring paint manufacturers to safely manage leftover latex and oil-based paint from consumer and contractor painting jobs. Following DEQ approval of the program plan, the new program began in July 2010 and will serve as a demonstration program to inform legislation in other states. The new program is expected to result in the proper management of an estimated 600,000 gallons of leftover paint each year and to provide Oregon governments with service valued at over \$4 million. Governments that currently collect leftover paint will realize a direct financial savings and services will be expanded statewide. In addition to providing collection services, the program will conduct an education program to reduce the amount of leftover paint.

In 2008 the Environmental Quality Commission approved moving forward to seek legislation that would provide a product stewardship framework for addressing reuse, recycling, and product design changes for toxic and difficult to manage waste products found in the solid waste stream. A product stewardship framework bill (HB 3060) and a mercury lighting product stewardship bill (SB 742) were introduced in 2009, however, neither of the Agency supported bills were passed.

DEQ participated in and helped to fund the Oregon Pharmaceutical Take Back Stakeholder group, which was facilitated by the Oregon Association of Clean Water Agencies. The group produced a report and recommendations in July 2007 which called for a product stewardship program in which pharmaceutical manufacturers and over-the-counter drug companies devise and implement a convenient and effective program for consumers to dispose of unwanted medicine. In 2009, SB 598 proposed a drug take back program which DEQ supported. The bill was not passed by the Legislature.

In addition to participation in the legislative arena for product stewardship, DEQ worked on a number of other product stewardship activities in collaboration with local, regional, and national stakeholders including Oregon local governments, the Northwest Product Stewardship Council, the Product Stewardship Institute (PSI), EPA, product manufacturers, and NGOs. For example, in the Metro area, DEQ partnered with Metro to increase thermostat recycling through the voluntary Thermostat Recycling Corporation program.

### **Waste Prevention**

The *Household Hazardous Waste Management Plan for Oregon* also increases emphasis on waste prevention. Waste prevention involves behavioral changes by Oregonians to create less HHW in the first place through changes in their purchase and use of products.

DEQ has continued to distribute two educational resources to help Oregonians reduce their use of toxic substances at home: the *Hazardless Home Handbook* and *Natural Gardening*. DEQ distributes both documents via the Internet and in hard copy, primarily to city and county governments and nongovernmental organizations that distribute them to interested residents.

Several local governments conduct their own outreach and education efforts focusing on using less toxic substances. In 2007 and 2008, using a grant from DEQ, the City of Gresham conducted a residential outreach project to encourage residents to reduce or discontinue the use of weed and feed, reduce outdoor water use and/or improve watering practices, and otherwise improve lawn health. Evaluation demonstrated indications of several promising changes, although significant shifts were not observed.

In 2008, DEQ continued work on the design of a targeted waste prevention outreach program. An earlier review of hazardous substances and populations had led to the development of a short-list of possible focus areas; DEQ commissioned a survey to aid in the design of one or more pilot programs around these priority substances and at-risk populations. The survey was conducted by the PSU Survey Research Lab in early 2008. A total of 803 Oregonians participated in the survey, which was conducted by telephone. A report detailing the survey methodology and results is available at [www.deq.state.or.us/pubs/reports.htm#hhwsurvey](http://www.deq.state.or.us/pubs/reports.htm#hhwsurvey). Although the survey focused on a short-list of hazardous substances and at-risk populations, it also generated valuable information about Oregonians' broader behaviors and perceptions related to hazardous household products. Following survey completion, development of further waste prevention outreach efforts was put on hold in response to revenue shortfalls.

# **Appendix A**

## **DEQ Collection Data**

**1991 - 2009  
CUMULATIVE DATA  
OREGON DEQ-SPONSORED HHW COLLECTION EVENTS**

Year	Collection Events	Main Collection Event Participants	Paint Collection Event Participants	Total Participants	Population Served <sup>1</sup>	% of Households Participating <sup>1</sup>	Total Pounds of Waste	Avg. Lbs. Per Participant	Avg. Cost Per Participant	Avg. Cost Per Pound of Waste (includes labor, disposal and equipment)	Avg. Cost Per Pound of Waste (includes only disposal)	Disposal Cost	Labor & Equipment Cost	Total DEQ Invoice
1991	11	2,545	405	2,950	248,950	3%	221,802	75	\$135	\$ 1.79	\$ 1.02	\$225,554	\$171,982	\$397,536
1992	17	4,442	428	4,870	182,245	7%	489,578	101	\$141	\$ 1.41	\$ 0.90	\$441,982	\$246,807	\$688,789
1993	5	646	0	646	51,000	3%	65,232	101	\$197	\$ 1.95	\$ 0.82	\$53,229	\$74,096	\$127,325
1994	7	2,204	298	2,502	130,725	5%	179,072	72	\$96	\$ 1.34	\$ 0.75	\$133,769	\$105,681	\$239,450
1995	23	4,398	514	4,912	469,020	3%	351,689	72	\$95	\$ 1.33	\$ 0.73	\$256,314	\$210,666	\$466,980
1996	20	3,569	72	3,641	152,517	6%	334,265	92	\$101	\$ 1.10	\$ 0.64	\$215,373	\$151,348	\$366,722
1997	27	6,413	204	6,617	192,340	9%	540,428	82	\$87	\$ 1.06	\$ 0.63	\$342,652	\$229,838	\$572,490
1998	18	3,644	28	3,672	124,855	7%	356,730	97	\$87	\$ 0.89	\$ 0.50	\$179,925	\$138,795	\$318,720
1999	7	3,028	0	3,028	147,695	5%	226,203	75	\$90	\$ 1.20	\$ 0.71	\$161,498	\$110,620	\$272,118
2000	12	2,379	0	2,379	82,900	7%	262,110	110	\$97	\$ 0.88	\$ 0.51	\$134,072	\$96,424	\$230,497
2001	6	2,528	0	2,528	95,250	7%	189,290	75	\$75	\$ 1.00	\$ 0.59	\$112,195	\$77,091	\$189,286
2002	5	1,671	0	1,671	99,700	4%	226,824	136	\$103	\$ 0.76	\$ 0.52	\$117,992	\$54,333	\$172,325
2003	7	1,373	0	1,373	44,800	8%	172,251	125	\$103	\$ 0.82	\$ 0.38	\$65,433	\$76,322	\$141,755
2004	5	1,890	0	1,890	108,250	4%	232,744	123	\$125	\$ 1.02	\$ 0.58	\$135,062	\$101,387	\$236,449
2005	7	2,367	0	2,367	87,000	7%	295,367	125	\$121	\$ 0.97	\$ 0.53	\$156,947	\$130,184	\$287,131
2006	2	171	0	171	8,866	5%	26,502	155	\$153	\$ 0.98	\$ 0.51	\$13,630	\$12,453	\$26,082
2007 <sup>2</sup>	4	1,453	0	1,453	124,293	3%	161,053	111	\$107	\$ 0.96	\$ 0.58	\$93,868	\$61,452	\$155,320
2008	5	1,004	0	1,004	257,383	1%	92,707	92	\$116	\$ 1.26	\$ 0.64	\$59,796	\$56,959	\$116,754
2009	3	1,205	0	1,205	73,415	4%	130,384	108	\$148	\$ 1.37	\$ 0.82	\$107,079	\$71,438	\$178,517
<b>TOTAL</b>	<b>191</b>	<b>46,930</b>	<b>1,949</b>	<b>48,879</b>	<b>2,681,204</b>	<b>5%</b>	<b>4,554,231</b>	<b>93</b>	<b>\$106</b>	<b>\$ 1.14</b>	<b>\$ 0.66</b>	<b>\$3,006,370</b>	<b>\$2,177,875</b>	<b>\$ 5,184,245</b>

<b>Flood Work</b>														
1996	N/A	N/A	N/A	N/A	183,145	N/A	62,057	N/A	N/A	\$ 1.43	\$ 0.79	\$49,173	\$39,875	\$89,048
1997	2	1,120	0	1,120	71,000	4%	106,409	95	\$98	\$ 1.03	\$ 0.63	\$67,222	\$42,787	\$110,009
2007	1	N/A	0	N/A	N/A	N/A	23,333	N/A	N/A	\$ 0.95	\$ 0.68	\$15,878	\$6,263	\$22,140

<sup>1</sup>The method of estimating population served changed in 2006, making it difficult to compare populations served and percentages of households participating for the periods 1991-2005 and subsequent years.

<sup>2</sup>Includes an event (Lexington) where DEQ contracted and initially paid for the event, but the county government subsequently reimbursed DEQ for all contract costs.

## 2008 and 2009 DEQ-SPONSORED HOUSEHOLD HAZARDOUS WASTE COLLECTION EVENT DATA

City	Date	Participants	Population Served	% of Households Participating	Total Pounds of Waste	Average Pounds per Participant	Average Cost per Participant	Average Cost per Pound of Waste (includes labor, disposal and equipment)	Average Cost per Pound of Waste (includes only disposal)	Disposal Cost	Labor & Equipment	Total DEQ Invoice
Yoncalla	5/31/2008	61	37,038	0.4%	7,014	115	\$159	\$1.38	\$0.66	\$4,632	\$5,063	\$9,695
Madras	6/21/2008	73	27,842	0.7%	9,280	127	\$186	\$1.47	\$0.72	\$6,661	\$6,953	\$13,614
Hermiston	6/28/2008	137	40,184	0.9%	22,701	166	\$159	\$0.96	\$0.60	\$13,527	\$8,310	\$21,837
Mill City	8/2/2008	17	35,274	0.1%	1,543	91	\$353	\$3.89	\$0.62	\$963	\$5,041	\$6,004
Grants Pass	10/4/2008	716	117,045	1.5%	52,169	73	\$92	\$1.26	\$0.65	\$34,013	\$31,592	\$65,605
Milton Freewater	4/25/2009	57	15,102	0.9%	6,242	110	\$336	\$3.07	\$1.00	\$6,252	\$12,901	\$19,153
Coos Bay	5/30/2009	954	53,562	4.5%	104,187	109	\$133	\$1.21	\$0.79	\$82,364	\$44,103	\$126,467
Port Orford	6/20/2009	194	4,751	10.2%	19,955	103	\$170	\$1.65	\$0.93	\$18,463	\$14,434	\$32,897
<b>TOTALS</b>		<b>2,209</b>	<b>330,798</b>	<b>1.7%</b>	<b>223,091</b>	<b>101</b>	<b>\$134</b>	<b>\$1.32</b>	<b>\$0.75</b>	<b>\$166,875</b>	<b>\$128,396</b>	<b>\$295,271</b>

## 2008 and 2009 DEQ-SPONSORED HOUSEHOLD HAZARDOUS WASTE COLLECTION EVENTS TYPES OF WASTE (In Pounds)

WASTE CATEGORY	Yoncalla	Madras	Hermiston	Mill City	Grants Pass	Milton-Freewater	Coos Bay	Port Orford	TOTALS	PERCENTAGE
Acids	131	61	619	0	1,006	94	678	179	2,768	1.2%
Aerosol Paint	134	146	314	22	1,431	0	0	0	2,047	0.9%
Aerosol Pesticides	10	107	138	21	570	133	3,266	510	4,755	2.1%
Alkaline Batteries	38	88	115	0	859	78	1,057	196	2,431	1.1%
Antifreeze	0	0	302	0	904	0	1,026	161	2,393	1.1%
Asbestos	0	0	0	0	0	319	0	0	319	0.1%
Automotive Batteries	0	0	0	219	4,439	0	5,244	0	9,902	4.4%
Bases	272	51	321	0	808	59	1,114	135	2,760	1.2%
Compressed Gas	0	48	33	0	41	9	296	0	427	0.2%
Flammable Liquids	0	0	0	0	0	0	0	0	0	0.0%
Flammable Liquids Bulked	1,391	841	1,831	391	6,762	671	13,761	2,380	28,028	12.6%
Flammable Solids	587	2,184	978	0	2,637	0	8,249	672	15,307	6.9%
Fluorescent Light Tubes	172	139	87	28	332	15	1,771	255	2,799	1.3%
Lithium Batteries	0	0	0	0	0	0	0	0	0	0.0%
Mercury (Elemental, Thermometers and Compounds)	3	5	11	0	116	10	18	6	169	0.1%
Mercury Batteries	0	0	0	0	0	0	0	0	0	0.0%
Motor Oil	198	520	424	0	1,255	0	3,455	915	6,767	3.0%
Ni-Cad Batteries	0	0	0	0	849	0	0	24	873	0.4%
Organic Peroxides	0	0	0	0	0	0	0	0	0	0.0%
Oxidizers	14	67	0	0	158	8	80	37	364	0.2%
Paint - Latex	1,698	986	4,789	195	5,727	0	9,393	2,507	25,295	11.3%
Paint Oil-Based	1,631	1,968	9,859	381	15,428	1,645	36,424	6,793	74,129	33.2%
PCBs & Light Ballasts	0	0	0	0	132	0	490	0	622	0.3%
Pesticides/Poisons	732	2,069	2,855	286	8,715	3,201	16,887	4,058	38,803	17.4%
Propane	0	0	0	0	0	0	948	1,127	2,075	0.9%
Reactives/Labpacks	0	0	25	0	0	0	30	0	55	0.0%
Other	3	0	0	0	0	0	0	0	3	0.0%
<b>TOTALS</b>	<b>7,014</b>	<b>9,280</b>	<b>22,701</b>	<b>1,543</b>	<b>52,169</b>	<b>6,242</b>	<b>104,187</b>	<b>19,955</b>	<b>223,091</b>	<b>100%</b>

**2008 and 2009 CONDITIONALLY-EXEMPT GENERATOR COLLECTION AT  
HOUSEHOLD HAZARDOUS WASTE COLLECTION EVENTS (DEQ- and PURCHASER-FUNDED)  
TYPES OF WASTE (In Pounds)**

DATE:	05/31/08	06/21/08	06/28/08	08/02/08	10/04/08	09/12/08	09/18/08	04/25/09 Milton- Freewater	05/30/09	06/19/09	05/08/09	07/24/09	09/12/09	TOTAL	
LOCATION:	Yoncalla	Madras	Hermiston	Mill City	Grants Pass	Tillamook	Boardman		Coos Bay	Port Orford	Boardman	Lincoln City	Boardman	PARTICIPANTS	PERCENTAGE
PARTICIPANTS:	2	2	6	0	6	15	1	1	6	1	4	3	4	51	
WASTE CATEGORIES															
Acids	211		652		6	172			103					1,144	5.7%
Aerosol Paint		38	21											59	0.30%
Aerosol Pesticide						136								136	0.7%
Alkaline Batteries		40												40	0.2%
Antifreeze														-	0.0%
Asbestos														-	0.00%
Automotive Batteries														-	0.0%
Bases	850		534		756	159			67					2,366	11.8%
Flammable Liquids	247		590		1,406	675					240	103		3,261	16.3%
Flammable Solids														-	0.0%
Fluorescent Light Tubes			373			160			130			81	285	1,029	5.1%
Grease/Tar														-	0.0%
Latex														-	0.0%
Mercury (elemental, thermometers, and compounds)		8	2			23		4		34	42			113	0.6%
Motor Oil														-	0.0%
NiCad Batteries		38	18											56	0.3%
Non-RCRA Liquid/Solid														-	0.0%
PRM-Oil Based Paint		243	967			2,803	49	117			567	209	678	5,633	28.2%
Oil Filters														-	0.0%
Organic Peroxides														-	0.0%
Oxidizers			88			77			28					193	1.0%
PCB Light Ballasts (lbs)											88	173	216	477	2.4%
Pesticides/Poisons	135	135	103		1,443	441	198		2,355	57		431	96	5,394	27.0%
Reactives						90								90	0.5%
Soil w/ Petroleum Distillates														-	0.0%
<b>TOTALS</b>	<b>1,443</b>	<b>502</b>	<b>3,348</b>		<b>3,611</b>	<b>4,736</b>	<b>247</b>	<b>121</b>	<b>2,683</b>	<b>91</b>	<b>937</b>	<b>997</b>	<b>1,275</b>	<b>19,991</b>	<b>100%</b>

## 2008 AND 2009 AGRICULTURAL PESTICIDE COLLECTION EVENTS

City	Weight of Pesticides (Lbs.)	Number of Participants
<b>2008</b>		
DEQ-SPONSORED <sup>1</sup>		
Yoncalla		
Madras	236	1
Hermiston		
Mill City		
Grants Pass		
		1
<b>Total, 2008</b>	<b>236</b>	<b>1</b>
<b>2009</b>		
DEQ-SPONSORED <sup>1</sup>		
Milton-Freewater		
Coos Bay		
Port Orford		
<b>Total, 2009</b>	<b>0</b>	<b>0</b>

<sup>1</sup>Only includes events co-located with DEQ-sponsored HHW collection events. Stand-alone agricultural pesticide events sponsored by other DEQ programs (Lab, Water Quality) are not included.

## 2008 AND 2009 FREE MERCURY COLLECTIONS

	Elemental Mercury		Mercury Compounds		Mercury in Manufactured Goods		Total Disposal Cost*
	(pounds)	(cost)	(pounds)	(cost)	(pounds)	(cost)	
<b>2008</b>							
LOCALLY-SPONSORED EVENTS (CEGs only)							
Tillamook	4	\$44			20	\$220	\$264
MERCURY FROM HHW FACILITIES (CEGs only)							
Lane County	42	\$462	948	\$3,765	311	\$1,389	\$5,616
Metro	25	\$275	100	\$1,103	290	\$2,809	\$4,187
DEQ COLLECTION EVENTS (HHW and CEGs)							
Hermiston (CEG)	2	\$22					\$22
Madras (CEG)					8	\$88	\$88
Grants Pass (HHW)	16	\$176	28	\$308	72	\$792	\$1,276
Hermiston (HHW)	4	\$44	2	\$22	5	\$55	\$121
Madras (HHW)					5	\$55	\$55
Mill City (HHW)							\$0
Yoncalla (HHW)	1	\$11			2	\$22	\$33
DENTAL MERCURY							
Oregon Dental Association Convention	36	\$396	958	\$4,322	110	\$1,170	\$5,888
DEQ DIRECT COLLECTION FROM HOUSEHOLDS							
Milton Freewater	26	\$221					\$221
<b>TOTAL 2008</b>	<b>156</b>	<b>\$1,651</b>	<b>2036</b>	<b>\$9,520</b>	<b>823</b>	<b>\$6,600</b>	<b>\$17,771</b>
<b>2009</b>							
LOCALLY-SPONSORED EVENTS (CEGs only)							
None							\$0
MERCURY FROM HHW FACILITIES (CEGs only)							
Lane County			810	\$8,910	1205	\$13,255	\$22,165
Metro	60	\$660	552	\$6,072	511	\$5,621	\$12,353
DEQ COLLECTION EVENTS (HHW and CEGs)							
Milton Freewater (CEG)					4	\$44	\$44
Coos Bay (CEG)	1	\$11					\$11
Port Orford (CEG)	21	\$231			13	\$143	\$374
Milton Freewater (HHW)	1	\$11			9	\$99	\$110
Coos Bay (HHW)	10	\$110			8	\$88	\$198
Port Orford (HHW)	5	\$55			1	\$11	\$66
DENTAL MERCURY							
Oregon Dental Association Convention	19	\$209	24		831	\$9,141	\$9,350
DEQ DIRECT COLLECTION FROM HOUSEHOLDS							
Boardman	8	\$88			34	\$374	\$462
Pendleton/La Grande	5	\$55					\$55
<b>TOTAL 2009</b>	<b>130</b>	<b>\$1,430</b>	<b>1386</b>	<b>\$14,982</b>	<b>2616</b>	<b>\$28,776</b>	<b>\$45,188</b>

\*Does not include cost of labor.

**2008 AND 2009 PERSISTENT BIOACCUMULATIVE TOXINS (PBTs)  
DEQ HOUSEHOLD HAZARDOUS WASTE COLLECTION EVENTS**

	DDT	Chlordane	Toxaphene	Aldrin	Dieldrin	DDD	Fluorescent Tubes <sup>1</sup>	CFLs (each)	HID (each)	Mercury Compounds	Elemental Mercury	Mercury Thermometers <sup>1</sup>	Mercury Batteries	Other Mercury Containing Articles	PCB Ballasts <sup>2</sup>	PCB Oil	Dioxin Waste	Total Pounds (excluding CFLs, HID)
	pounds	pounds	pounds	pounds	pounds	pounds	pounds	number	number	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	
Yoncalla	1	5	0	0	0	0	172	8	0	0	1	2	0	0	0	0	0	181
Madras	0	15	4	1	0	0	133	10	0	0	0	4	0	1	0	0	0	158
Hermiston	16	3	0	14	0	0	83	9	0	2	4	5	0	0	0	0	0	127
Mill City	0	0	0	0	0	0	28	0	0	0	0	0	0	0	0	0	0	28
Grants Pass	2	10	1	0	0	0	332	0	0	28	16	12	0	60	132	0	0	593
Milton Freewater	1	0	0	0	0	0	15	11	0	0	1	1	0	0	0	0	0	18
Coos Bay	65	10	5	0	1	0	1771	198	0	0	10	5	0	4	490	0	0	2361
Port Orford	0	2	0	0	0	0	255	89	0	0	4	2	0	0	0	0	0	263
<b>TOTALS</b>	<b>84</b>	<b>45</b>	<b>10</b>	<b>15</b>	<b>1</b>	<b>0</b>	<b>2789</b>	<b>325</b>	<b>0</b>	<b>30</b>	<b>36</b>	<b>31</b>	<b>0</b>	<b>65</b>	<b>622</b>	<b>0</b>	<b>0</b>	<b>3728</b>

<sup>1</sup>Includes the weight of the glass.

<sup>2</sup>Includes weight of ballasts.

# **Appendix B**

## **Background Information for Statewide Collection Data (Figure 3)**

## **Appendix B**

This appendix describes the process and assumptions used to derive the estimates of waste quantities in Figure 3. DEQ relied on data provided by its contractor, local governments in Oregon, and their contractors. One overriding limitation to Figure 3 is that DEQ has accepted the data “as is”, and not audited the data for accuracy.

Numbers of vehicles in Figure 3 were all provided by the local programs and DEQ’s contractor. No adjustments were made to these estimates.

**Metro** – Metro-Central and Metro-South facilities supplied DEQ with a report listing all the hazardous waste that was shipped off site from each facility in 2009. The total from both facilities has been combined. An additional report contained the total amount of CEG waste that was collected in 2009. The CEG waste has been subtracted from the total hazardous waste received at the facilities, resulting in just the household hazardous waste numbers. Although wastes removed in 2009 are not exactly the same as wastes collected in 2009, it is a reasonable proxy.

**Lane County** – Lane County provided DEQ with a report of all hazardous waste shipped off site in 2009. As with Metro, this is considered to be a reasonable proxy for amounts collected in 2009. The HHW and CEG waste are reported together. It was not possible to determine the exact contribution of HHW (vs. CEG) to each waste type. DEQ estimated quantities of HHW based on Lane County’s estimate of the percentage of overall disposal costs associated with HHW (vs. CEG).

**Marion/Polk/Yamhill Counties** – Marion County provided DEQ a report detailing the household hazardous waste received at the facility, including HHW collected at one-day events in Marion County. DEQ received reports from Yamhill and Polk Counties detailing household hazardous waste collected at one-day events not received by the Marion County facility. All data was combined for 2009 totals.

**Columbia County** – Columbia County provided DEQ with a report of all household hazardous waste received in 2009.

**Wasco/Hood River/Sherman Counties** – Wasco/Hood River/Sherman Counties provided DEQ a report detailing the HHW collected in the three counties in 2009.

**Deschutes County** – Deschutes County provided DEQ a report detailing the HHW collected in the county in 2009.

**Jackson County-White City** – DEQ received a report detailing the hazardous waste collected in White City during a two-day event held in 2009. The report included all HHW and CEG waste collected. There was no way to determine just the amount of HHW from the report. The number of CEG customers at the event was reported as 44. DEQ estimated the amount of CEG waste by looking at 30 recent CEG collection events. The total amount of waste for 30 CEG events was calculated and divided by the total number of participants. That resulted in an average quantity of waste per participant for each of the 8 waste categories. These quantities were multiplied by the number of CEG customers at the White City event. Those numbers were subtracted from the total White City numbers as an estimate of the CEG waste collected at the one day event.

Mercury posed a special challenge. Figure 3 excludes mercury-containing lamps, but CEG collection data from other communities tends to aggregate lamps with mercury and other mercury-containing

products. The White City event collected 50 pounds of mercury labpack and 432 pounds of lamps, for a total of 482 pounds. The average per-CEG amount of all mercury, multiplied by the number of CEG customers at White City, generated an estimate of 219 pounds of CEG mercury waste, or 45% of the total actually collected. The estimate of household non-lamp mercury for White City was derived by discounting the 50 pounds of mercury labpack by 45%.

**Linn County-Albany** – There was one weekend event held in Albany in 2009. The local waste franchisee provided DEQ with a report detailing waste types and quantities collected in 2009. The CEG waste was not included in these numbers. Franchisee staff estimated that the ‘other’ waste category was 70% organic peroxides and 30% flammables.

**Benton County-Corvallis** – There were four one-day events held in Corvallis in 2009. The local waste franchisee provided DEQ with a report detailing the waste types and quantities collected in 2009. The report contained only HHW and no adjustments were needed.

**Josephine County-Grants Pass** – Southern Oregon Sanitation provided DEQ a report containing all the HHW collected at the event in 2009.

**Gilliam County** – DEQ received data from the Chemical Waste Management facility in Gilliam County stating the amount of HHW collected at the facility in 2009.

**Others** – The reports for the DEQ sponsored events (Milton-Freewater, Coos Bay and Port Orford) and the purchaser events (Boardman, Lexington and Lincoln City) were provided by DEQ’s contractor.