

## Chapter 5: Moderate Risk Waste Management



The term “moderate risk waste” (MRW) was created by revisions to Washington State’s 1986 Hazardous Waste Management Act (RCW 70.105). MRW is a combination of household hazardous waste (HHW) and conditionally exempt small quantity generator (CESQG) waste. HHW is waste created in the home, while CESQG is small quantities of business or non-household waste. Both HHW and CESQG waste are exempt from state hazardous waste regulations.

- Total MRW collected in 2009 was just more than 29.2 million pounds.
- The average amount of HHW disposed of per participant was 68.4 pounds, and per capita was 2.21 pounds.
- More than 3.2 percent of Washington residents used a fixed facility or collection event to remove hazardous waste from their households, about 8.3 percent of all households.
- Counties that publicly collected the most CESQG waste per capita were Lewis, Yakima, San Juan, Whatcom and Kitsap.
- Counties that collected the most used oil per capita were Garfield, Stevens, Skamania, Pend Oreille, Wahkiakum and Cowlitz.
- The ten categories of collected waste that increased the most from 2008 were Mercury Devices (manometers & barometers), Mercury Switches & Relays, Oil Filters, Oil-Based Paint (contaminated), Oil with Chlorides, Mercury (elemental), Non-Regulated Liquids, Nitrate Fertilizers, Chlorinated Solvents and Oil with PCBs.
- Approximately 82 percent of all MRW was recycled, reused or used for energy recovery.

MRW collections started in the early 1980s primarily as HHW-only events, also known as “roundups” or collection events. These events usually happened once or twice a year.

In the late 1980s, permanent collection facilities now known as fixed facilities began to replace collection events to fulfill the need for year-round collection. In addition, collection facilities have further developed with mobile units and satellite facilities. These efforts resulted in a larger number of customers served, decreased costs and increased reuse and recycling of MRW.

Please note the data in this chapter is only a portion of the MRW waste stream. The MRW data presented here is reported through local governments, with a few private companies also reporting because they have a solid waste permit issued by the appropriate local authority. Chapter 4 includes additional statewide data.

## Funding

RCW 70.105.235 authorizes Ecology to provide financial assistance through grants to locals for preparing, updating and implementing local Hazardous Waste Plans, which detail local MRW programs. Ecology uses the Coordinated Prevention Grants program (CPG) to provide pass-through funding to local governments for these purposes. CPG is historically funded by the Local Toxics Control Account (LTCA).<sup>1</sup> However, the 2009-11 funding comes from the State Building and Construction Account (SBCA). LTCA funds were transferred to the General Fund to help balance the state budget. SBCA is funded through bonds that are sold by the state treasurer.

All local governments in the state of Washington have completed Hazardous Waste (HW) Plans. See Chapter 2 for the status of plans in each county. Every local HW plan must address:

- ✓ HHW collection.
- ✓ Household and public education.
- ✓ Small business technical assistance.
- ✓ Small business collection assistance.
- ✓ Enforcement.
- ✓ Used oil collection and education.

## Accuracy of Data Collection

Ecology created and circulates a standard reporting form to all MRW programs. Nonetheless, the reported data can vary depending on a program's collection process, and how data is reported and interpreted. All programs must provide individual MRW reports.

## 2009 Data

*Chapter 173-350 WAC, Solid Waste Handling Standards*, requires local programs to submit MRW report forms annually. Annual reports are required to be submitted by April 1 for the previous calendar year collections. Information received from local programs through MRW annual reports provides Ecology with data on MRW infrastructure, collection trends, costs and waste types received at collection events and fixed facilities. Ecology translates this data into the information contained in this chapter and designs it to be specifically useful to those who operate or work in MRW programs in Washington State.

This year's report focuses on 2009 data with some comparisons to data published in previous years' reports. In an effort to provide useful information for individual programs, it was decided to present data in categories by county size.

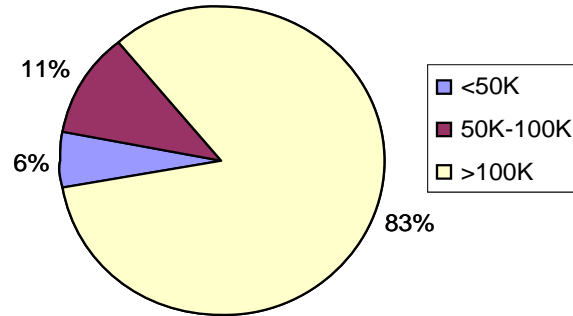
In 2009, Columbia County did not report any HHW or used oil collections. Also, Franklin and Mason Counties failed to provide used oil reports for 2009. Private collectors provided the

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<sup>1</sup> Authorized by RCW 82.21.030 (Chapter 82.21 RCW, Hazardous substance tax -- Model toxics control act).

numbers shown in this report for Columbia County. Figure 5.1 indicates a distinction between counties with a population of less than 50,000, 50,000 to 100,000, and more than 100,000.

**Figure 5.1**  
**Percent of State Population by County Size**



Permanent fixed facilities now service most of the state. In 2009, Chelan, Douglas, Ferry, Garfield, San Juan, Skamania and Wahkiakum counties did not have fixed facilities. Garfield residents use the facility in Asotin County and Cowlitz County conducts a mobile unit in Wahkiakum County. Chelan, Douglas, Ferry, San Juan and Skamania counties conduct collection events. In past reports Ferry County was shown to have a fixed facility, but the facility is more properly categorized as a limited MRW Facility. There is a new fixed facility at the Washougal Transfer Station in Clark County. Additionally, the West Vancouver Material Recovery Facility in Clark County replaced its MRW Facility.



**New MRW Facility at the Washougal Transfer Station in Clark County**

Collection services for CESQGs have leveled off statewide. For 2009, 18 fixed facilities serviced CESQGs and 6 different counties provided collection events for CESQGs.

Table 5.1 shows the size of individual counties. In Washington State there are 42 programs that manage MRW. These programs include all 39 counties.

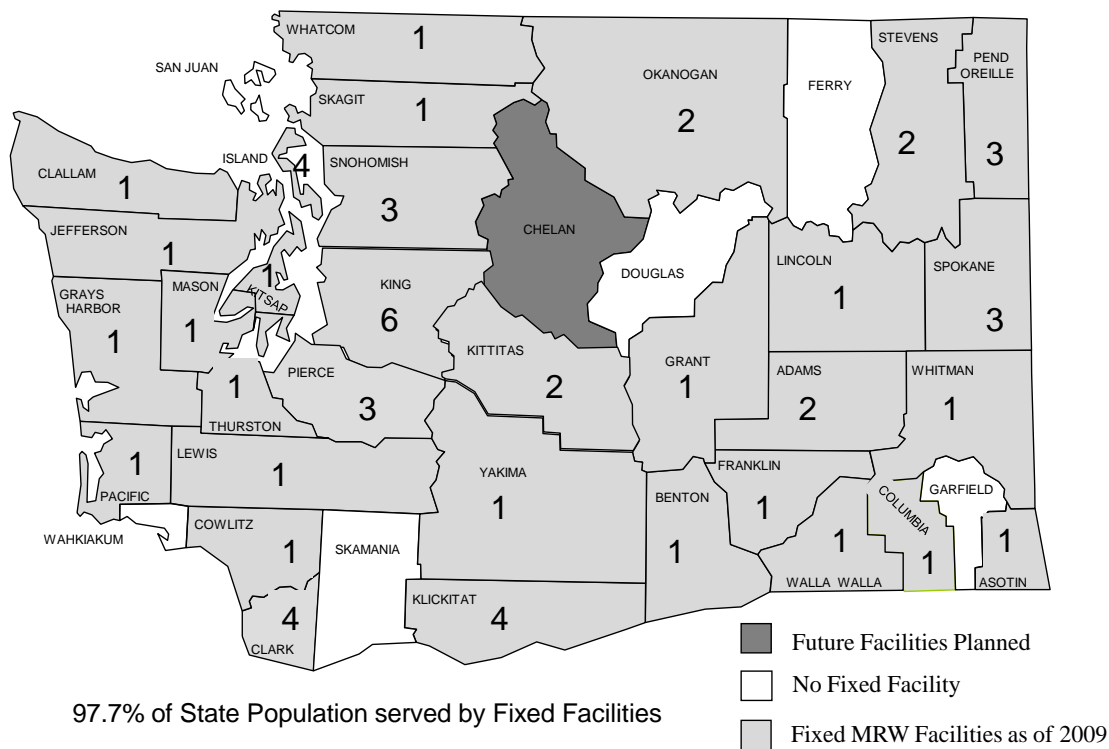
**Table 5.1  
Individual County Population by Size (2009)**

<b>&lt;50K</b>		<b>50K-100K</b>		<b>&gt;100K</b>	
Adams	18,000	Chelan	72,100	Benton	169,300
Asotin	21,500	Clallam	69,500	Clark	431,200
Columbia	4,100	Cowlitz	99,600	King	1,909,300
Douglas	37,600	Franklin	72,700	Kitsap	247,600
Ferry	7,800	Grant	86,100	Pierce	813,600
Garfield	2,250	Grays Harbor	71,200	Skagit	118,900
Jefferson	29,000	Island	80,300	Snohomish	704,300
Kittitas	39,900	Lewis	75,200	Spokane	465,000
Klickitat	20,200	Mason	56,800	Thurston	249,800
Lincoln	10,450	Walla Walla	59,200	Whatcom	193,100
Okanogan	40,500	<b>50K-100K Total</b>	<b>743,200</b>	Yakima	238,400
Pacific	21,800			<b>&gt;100K Total</b>	<b>5,540,500</b>
Pend Oreille	12,900				
San Juan	16,300				
Skamania	10,800				
Stevens	44,000				
Wahkiakum	4,100				
Whitman	43,300				
<b>&lt;50K Total</b>	<b>384,500</b>				

**State Total: 6,668,200**

Map 5.A shows which counties have permanent facilities, the number of facilities in each county and which counties are likely to develop a permanent facility in the future.

**Map 5.A**  
**58 MRW Facilities as of 2009**



## MRW Collected

As shown in Table 5.2, Washington programs collected approximately 14.7 million pounds of HHW, 8.9 million pounds of used oil (UO) and 5.6 million pounds of CESQG waste, for a total of 29.2 million pounds of MRW during 2009. The most significant trends seen since 2004 are the increase of CESQG waste collected, and decrease in HHW and used oil collected.

HHW increased slightly by approximately 600,000 pounds in 2009. For the first time since 2004 used oil collections showed a slight increase of approximately 300,000 pounds in 2009. CESQG decreased significantly by approximately 2.7 million pounds in 2009. This decrease can mostly be attributed to Emerald Services Inc. collection of antifreeze, which decreased by approximately 2.9 million pounds in 2009 due to economic conditions.

**Table 5.2  
Total Pounds per Waste Category  
Years 1999 – 2009**

Collection Year	HHW lbs (no UO)	Used Oil lbs	CESQG lbs	Total MRW lbs
1999	9.9M	9.3M	637K	20.4M
2000	10.5M	8.3M	1.1M	19.8M
2001	15.6M	11.3M	1.0M	27.9M
2002	13.5M	9.2M	1.4M	24.1M
2003	16.0M	11.7M	1.3M	29.0M
2004	15.3M	12.4M	2.4M	30.1M
2005	14.7M	11.3M	6.3M	32.3M
2006	15.2M	10.0M	7.1M	32.3M
2007	14.9M	9.7M	7.6M	32.2M
2008	14,163,842	8,606,794	8,336,030	31,106,666
2009	14,704,355	8,925,818	5,637,850	29,268,023

### Collection by Waste Category and Type

There are a few factors that affected collection totals for 2009. Two large programs discontinued collection of latex paint in 2009. This resulted in approximately 850,000 pounds of latex paint not getting collected in 2009 compared to 2008.

Private collection of antifreeze from CESQG's declined by almost 3 million pounds while public collection of antifreeze from households increased by approximately 1.6 million pounds.

The E-Cycle Washington Program, an Extended Producer Responsibility (EPR) program to collect and recycle covered electronic products came online in 2009. This resulted in a reduction of approximately 1.3 million pounds of electronics collected by MRW programs.

Oil filters collected from households increased by approximately 1.2 million pounds. Modest fluctuations in other categories make up the rest of the difference to arrive at approximately 2 million less pounds of MRW collected in 2009 compared to 2008.

As shown in Table 5.3, the most dominant waste types of MRW collected in 2009 were noncontaminated used oil, antifreeze, oil-based paint, latex paint, lead-acid batteries and flammable liquids. These totals include used oil and antifreeze collected at all collection sites. These six specific waste types accounted for approximately 76 percent of the estimated 29.2 million pounds of MRW collected in 2009.

**Table 5.3**  
**Six Most Dominant MRW Waste Types Collected in 2009**

Waste Type	Total Lbs.
Non-Contaminated Used Oil	8,848,250
Antifreeze	4,840,774
Oil-based Paint	2,971,100
Latex Paint	2,019,710
Lead-Acid Batteries	1,809,711
Flammable Liquids	1,742,614
<b>Total</b>	<b>22,232,159</b>

Table 5.4 provides summary information on total pounds of MRW collected from HHW and CESQG (publicly and privately collected) categories by waste types. Some waste type categories were changed and a few new ones added to the annual report form beginning in 2007.

**Table 5.4**  
**Total Pounds of MRW Collected by Waste Category in 2009**

Waste Type	HHW	CESQG	Total
Acids	109,511	28,894	138,405
Acids (Aerosol Cans)	0	921	921
Aerosols (Consumer Commodities)	155,866	14,690	170,556
Antifreeze	2,297,260	2,543,514	4,840,774
Bases	136,510	39,058	175,568
Bases, Aerosols	274	452	726
Batteries (Lead Acid)	1,773,191	36,520	1,809,711
Batteries (Small Lead Acid)	10,118	5,418	15,536
Batteries (Dry Cell)	204,721	17,007	221,728
Batteries (Nicad/NIMH/Lithium)	28,644	7,888	36,532
CFCs	2,021	0	2,021
Chlorinated Solvents	5,380	3,841	9,221
CRT's	215,490	12,668	228,158
Electronics	472,278	1,620	473,898
Flammable Solids	12,159	35,301	47,460
Flammable Liquids	1,036,124	706,490	1,742,614
Flammable Liquids, Aerosols	3,693	0	3,693

Waste Type	HHW	CESQG	Total
Flammable Liquids Poison	172,146	18,207	190,353
Flammable Liquid Poison, Aerosols	11,211	45	11,256
Flammable Gas (Butane/Propane)	66,705	2,096	68,801
Flammable Gas Poison	6,423	286	6,709
Flammable Gas Poison, Aerosols	30,023	1,256	31,279
Latex Paint	1,921,758	97,952	2,019,710
Latex Paint, Contaminated	978,855	67,116	1,045,971
Mercury Compounds (Dental Amalgam)	63	7,248	7,311
Mercury Devices (Monometers, Barometers, etc.)	844	1,208	2,052
Mercury (Fluorescent Lamps & CFLs)	264,715	110,375	375,090
Mercury (Pure Elemental)	1,101	296	1,397
Mercury (Switches & Relays)	101	15	116
Mercury (Thermostats/Thermometers)	474	550	1,024
Nitrate Fertilizer	3,523	0	3,523
Non-Regulated Liquids	126,591	1,021,107	1,147,698
Oil-Based Paint	2,665,975	305,125	2,971,100
Oil-Based Paint, Contaminated	4,449	49,960	54,409
Oil Contaminated	51,518	26,050	77,568
Oil Filters	1,454,698	2,887	1,457,585
Oil Filters Crushed	18,077	0	18,077
Oil Non-Contaminated	8,773,022	75,228	8,848,250
Oil with Chlorides	2,154	503	2,657
Oil with PCBs	19,367	12,787	32,154
Other Dangerous Waste	33,990	440,229	474,219
Organic Peroxides	1,326	116	1,442
Oxidizers	29,120	4,605	33,725
Pesticide/Poison Liquid	252,631	18,564	271,195
Pesticide/Poison Solid	172,857	13,222	186,079
Photo/Silver Fixer	80	7,771	7,851
Reactives	1,858	42	1,900
<b>MRW TOTAL</b>	<b>23,528,895</b>	<b>5,739,128</b>	<b>29,268,023</b>

\* These totals do not match the HHW and CESQG totals in Table 5.2 because these contain used oil, which was separated out in Table 5.2. Also, in past reports most of the used oil was included with the CESQG totals. It is impossible to know if used oil collected at facilities such as Jiffy Lube is HHW or CESQG. However, it seems more reasonable in that most of it is HHW rather than CESQG. Therefore, since 2008 it is now included with the HHW total in Table 5.4 instead of the CESQG total as in the

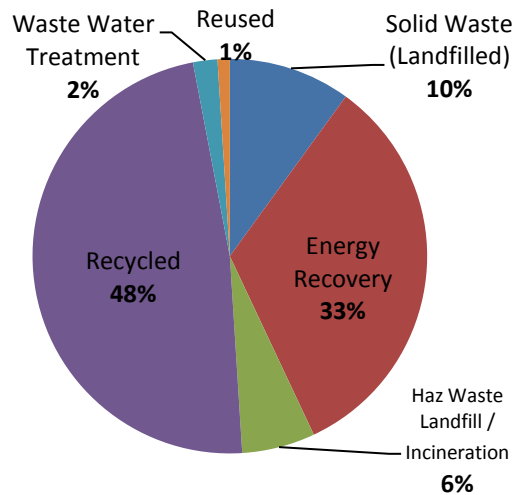


past. Note: In 2009 MRW facilities recycled 507,956 pounds of materials such as propane tanks, cardboard, cans, etc. This number is not included in any of the data in the above table or elsewhere in this Chapter. It is noted here because it is a waste stream that MRW facilities must deal with. The majority of MRW facilities manage these recyclables appropriately.

## Disposition of MRW Waste

The disposition of MRW collected is generally well managed. Most MRW is recycled or used for energy recovery. Very little of the MRW collected is safe for solid waste disposal. Six percent of all MRW is disposed at a hazardous waste landfill or incinerator. Figure 5.2 shows final disposition of MRW between recycled, reused, energy recovery, hazardous waste landfill or incineration, solid waste landfill and disposal through a wastewater treatment plant.

**Figure 5.2**  
**MRW Final Disposition**



## MRW Data

Table 5.5 shows various data by county. This data includes privately collected CESGQ wastes by Emerald Services and Phillip Services Corporation. The included private collection data was first presented this way in 2008 with previous reports including this data for Pierce and King counties only. This information can be used to evaluate efficiencies within each county by comparing percentage of participants per housing units and costs, and HHW pounds per participant. Housing units are the number of households in each county. This data is used instead of per capita because participants typically represent a household.

**Table 5.5  
Various HHW Data by County**

County	Housing Units	HHW Participants	% Participant / Housing Units	HHW Cost / Participant	HHW lbs / Participant	HHW Total lbs	HHW, SQG, & Used Oil Total lbs
Adams	6,420	180	2.8%	\$29.05	31.43	5,657	30,256
Asotin	9,922	1,255	12.7%	\$86.94	54.19	68,008	110,875
Benton	66,602	5,298	8.0%	\$46.48	49.51	262,295	450,127
Chelan	34,562	732	2.1%	\$118.09	113.87	83,355	197,256
Clallam	35,341	546	1.5%	\$183.28	150.20	82,011	257,808
Clark	168,118	9,673	5.8%	\$54.60	153.38	1,483,661	1,920,609
Columbia	2,183	0	0%	\$0	0	No HHW Collection #'s in 2009	1,773*
Cowlitz	43,190	1,645	3.8%	\$62.77	213.73	351,594	677,089
Douglas	15,544	664	4.3%	\$68.04	91.60	60,820	105,959
Ferry	4,168	24	.6%	\$32.18	23.67	568	4,798
Franklin	23,544	297	1.3%	\$32.50	39.21	11,646	316,907
Garfield	1,326	Inc. w/ Asotin	Inc. w/ Asotin	Inc. w/ Asotin	Inc. w/ Asotin	Inc. w/ Asotin	18,195
Grant	34,625	684	2.0%	\$101.82	91.06	62,283	126,626
Grays Harbor	35,734	1,783	5.0%	\$74.41	61.48	109,620	386,144
Island	38,822	2,698	7.0%	\$64.97	78.45	211,665	398,207
Jefferson	16,649	1,447	8.7%	\$97.15	53.75	77,774	163,197
King	832,337	64,037	7.7%	\$51.17	44.84	2,871,576	6,438,039
Kitsap	105,227	7,724	7.3%	\$101.12	124.85	964,339	1,640,260
Kittitas	20,010	499	2.5%	\$180.81	222.70	111,128	212,618
Klickitat	10,091	8,400	83.2%	\$5.02	10.27	86,261	113,453
Lewis	34,232	1,068	3.1%	\$176.38	255.39	272,760	516,237
Lincoln	5,846	332	5.7%	\$37.03	85.48	28,380	54,843
Mason	30,618	4,125	13.5%	\$9.94	22.02	90,831	125,627
Okanogan	21,112	377	1.8%	\$175.82	119.58	45,083	75,459
Pacific	15,276	275	1.8%	\$424.24	52.18	14,350	24,406
Pend Oreille	7,615	7,319	96.1%	\$10.82	11.07	81,036	132,971
Pierce	326,768	10,255	3.1%	\$62.51	43.83	449,479	2,368,268
San Juan	11,679	298	2.6%	\$164.07	316.96	94,455	141,839
Skagit	49,996	3,219	6.4%	\$56.28	82.85	266,710	487,381
Skamania	5,460	214	3.9%	\$86.93	156.20	33,427	75,324
Snohomish	280,718	14,558	5.2%	\$57.90	233.10	3,247,824	4,935,938
Spokane	198,672	36,800	18.5%	\$18.19	26.23	965,428	2,225,826

County	Housing Units	HHW Participants	% Participant / Housing Units	HHW Cost / Participant	HHW lbs / Participant	HHW Total lbs	HHW, SQG, & Used Oil Total lbs
Stevens	20,096	412	2.1%	\$46.11	318.80	131,345	325,131
Thurston	105,694	16,479	15.6%	\$31.10	81.94	1,350,325	2,091,370
Wahkiakum	2,106	39	Inc. w/ Cowlitz	Inc w/ Cowlitz	Inc w/ Cowlitz	Inc w/ Cowlitz	12,216
Walla Walla	23,442	1,896	8.1%	\$79.90	43.57	82,611	133,160
Whatcom	88,929	7,283	8.2%	\$51.19	36.41	265,202	739,123
Whitman	19,041	902	4.7%	\$36.50	32.02	28,881	57,210
Yakima	85,661	1,526	1.8%	\$198.30	230.65	351,967	1,175,498
<b>STATEWIDE</b>	<b>2,837,376</b>	<b>214,963</b>	<b>7.6%</b>	<b>\$47.36</b>	<b>68.40</b>	<b>14,704,355</b>	<b>29,268,023</b>

\* Columbia County total represents privately collected CESQG wastes only.

## Household Hazardous Waste (HHW)

### Participants per Housing Unit

Counties that exhibit ten percent or higher of participants per housing unit provide excellent public education to encourage use of facilities or events, have very convenient locations for their collection facilities, or both. The participation number and rate for Klickitat and Pend Oreille Counties seem high and were not verified before this report was completed.

### Cost per Participant

This statistic is hard to compare because of the many variables in program costs. Some programs record every cost, whether direct or indirect; others record only the disposal and basic operation costs.

Larger counties have the advantage of efficiency in scale, both in quantities received and in disposition options. Also, there are differences in service levels of the basic program, accounting differences, and errors. However, this data does provide an idea of what is possible and an incentive to contact those counties that seem to operate efficiently. According to annual reports submitted to Ecology, HHW (does not include CESQG costs) programs spent just more than \$10.1 million in 2009 statewide.

## HHW Pounds per Participant

The average pounds collected statewide per participant for HHW was 68.4. Table 5.6 shows the top five counties with the highest collections of HHW in pounds per capita (not participant) for 2007-09. Statewide, HHW pounds per capita collected was 2.21 pounds.

**Table 5.6**  
**High Collections of HHW (No Used Oil Sites)**  
**Pounds per Capita by County in 2007-09**

HHW 2007		
County	Size	Lbs
Pend Oreille	<50K	6.85
Klickitat	<50K	6.26
Skagit	>100K	4.42
Skamania	<50K	4.21
Clark	>100K	4.16

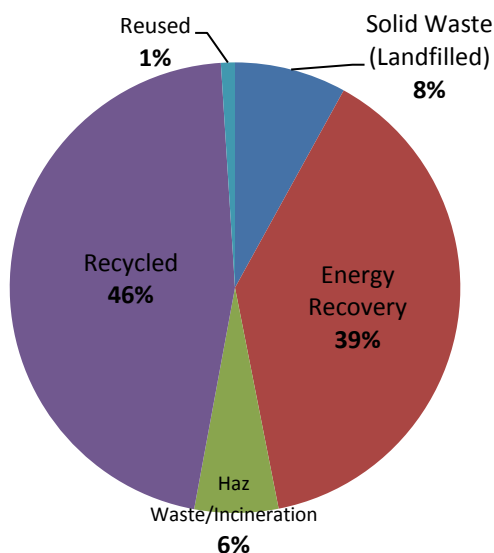
HHW 2008		
County	Size	Lbs
Pend Oreille	<50K	5.22
Clark	>100K	5.18
Lewis	50-100K	4.82
Klickitat	<50K	4.52
Kittitas	<50K	3.74

HHW 2009		
County	Size	Lbs
Pend Oreille	<50K	6.28
San Juan	<50K	5.80
Thurston	>100K	5.41
Snohomish	>100K	4.61
Klickitat	<50K	4.27

## HHW Disposition

Figure 5.3 shows the final disposition of all HHW collected throughout Washington State.

**Figure 5.3**  
**HHW Final Disposition**



## Conditionally Exempt Small Quantity Generator (CESQG)

Twenty-two local MRW programs collect CESQG wastes. King County began a pilot program to collect CESQG wastes in 2008 and that pilot continued in 2009. The city of Tacoma offers CESQG's collection assistance for fluorescent lights only. Counties that sponsor CESQG waste collections are:

Asotin	Grays Harbor	Lewis	Snohomish
Benton	Island	Okanogan	Thurston
Chelan	Jefferson	Pacific	Whatcom
Cowlitz	King	Pierce	Yakima
Douglas	Kitsap	San Juan	
Grant	Kittitas	Skagit	

The top five counties that publicly collected the most CESQG waste per capita in 2009 were:

- Lewis
- Yakima
- San Juan
- Whatcom
- Kitsap

Table 5.7 shows the total amount of CESQG waste collected publicly and privately in each county. When we take into account both public and private collection numbers, the top five counties for CESQG collections per capita in 2009 were:

- Franklin
- Whatcom
- Spokane
- Grays Harbor
- Lewis

**Table 5.7**  
**2009 Washington State Public and Private CESQG Collections**  
**in Pounds by County**

County	Publicly Collected CESQG Waste	Public CESQG Waste Collected/Capita	Privately Collected CESQG Waste	Total CESQG Waste Collected	Total CESQG Waste Collected/Capita
Adams	0	0	1,670	1,670	.09
Asotin	2,949	.14	1,259	4,208	.20
Benton	6,328	.04	57,763	64,091	.38
Chelan	9,035	.12	15,870	24,905	.34
Clallam	0	0	53,658	53,658	.77
Clark	0	0	183,589	183,589	.43
Columbia	0	0	1,773	1,773	.43
Cowlitz	26,014	.26	11,041	37,055	.37
Douglas	825	.02	10,407	11,232	.30
Ferry	0	0	767	767	.10
Franklin	0	0	305,261	305,261	4.20
Garfield	0	0	195	195	.09
Grant	575	.01	10,838	11,413	.13
Grays Harbor	17,964	.25	78,790	96,754	1.36
Island	19,158	.24	2,664	21,822	.27
Jefferson	6,075	.21	24,140	30,215	1.04
King	105,896	.06	1,381,730	1,487,626	.78
Kitsap	104,116	.42	185,956	290,072	1.17
Kittitas	894	.02	3,101	3,995	.10
Klickitat	0	0	441	441	.02
Lewis	61,739	.82	37,007	98,746	1.31
Lincoln	0	0	3,324	3,324	.32
Mason	0	0	34,796	34,796	.61
Okanogan	3,651	.09	3,364	7,015	.17
Pacific	325	.01	1,846	2,171	.10
Pend Oreille	0	0	2,554	2,554	.20
Pierce*	3,989	.01	1,013,580	1,017,569	1.25
San Juan	9,880	.61	0	9,880	.61
Skagit	11,912	.10	18,759	30,671	.26
Skamania	0	0	1,377	1,377	.13
Snohomish	183,545	.26	116,623	300,168	.43
Spokane	0	0	701,980	701,980	1.51
Stevens	0	0	3,686	3,686	.08
Thurston	45,990	.18	206,431	252,421	1.01
Wahkiakum	0	0	476	476	.12
Walla Walla	0	0	4,284	4,284	.07
Whatcom	116,431	.60	203,485	319,916	1.66
Whitman	0	0	10,954	10,954	.25
Yakima	180,610	.76	24,510	205,120	.86
<b>Statewide Totals</b>	<b>917,901</b>	<b>.14</b>	<b>4,719,949</b>	<b>5,637,850</b>	<b>.85</b>

\* City of Tacoma's CESQG program collects fluorescent lighting only.

Table 5.8 shows the total amount of CESQG waste collected publicly and privately by waste type. Excluding the “Other DW” category, the top five CESQG waste types collected in 2009 were:

- Antifreeze
- Non-Regulated Liquids
- Flammable Liquids
- Oil-Base Paint
- Mercury Collections (includes all mercury waste types)

**Table 5.8**  
**Washington State Public and Private CESQG Collections for 2009 by Waste Type**

Waste Type	Public Collections	Private Collections	Totals
Antifreeze	10,554	2,532,960	2,543,514
Non-Regulated Liquids	41,914	854,284	896,198
Flammable Liquids	119,050	587,440	706,490
Other DW	31,562	421,531	453,093
Paint - Oil Base	255,785	49,340	305,125
Mercury Collections	105,458	14,233	119,691
Paint - Latex	89,861	11,091	100,952
Used Oil - Non-Contaminated	59,390	15,838	75,228
Paint - Latex Contaminated	27,864	36,252	64,116
Paint - Oil Base -Contaminated	0	49,960	49,960
Bases	18,275	20,783	39,058
Batteries - Auto Lead Acid	26,932	9,588	36,520
Flammable Solids	7,087	28,214	35,301
Acids	13,966	14,928	28,894
Used Oil - Contaminated	933	25,117	26,050
CRT's	10,768	12,668	23,436
Pesticides - Poison/Liquid	13,332	5,232	18,564
Flammable Liquid Poison	13,840	4,367	18,207
Batteries - Alkaline/Carbon	14,143	2,864	17,007
Aerosols - Consumer Commodities	5,537	9,153	14,690
Pesticides - Poison/Solids	8,317	4,905	13,222
Oil w/ PCB's	12,787	0	12,787
Batteries-Nicad/Lithium	5,959	1,929	7,888
Photo/Silver Fixer	7,090	681	7,771
Batteries - Small Lead Acid	5,168	250	5,418
Oxidizers	3,758	847	4,605
Chlorinated Solvents	2,301	1,540	3,841
Oil Filters	1,937	950	2,887
Flammable Butane/Propane	1,776	320	2,096
Electronics	0	1,620	1,620
Flammable Gas Poison - Aerosols	1,256	0	1,256
Acids - Aerosols	921	0	921
Oil w/Chlorides	0	503	503
Bases - Aerosols	1	451	452
Flammable Gas Poison	286	0	286
Organic Peroxides	11	105	116
Flammable Liquid Poison - Aerosols	45	0	45
Reactives	37	5	42
<b>Totals</b>	<b>917,901</b>	<b>4,719,949</b>	<b>5,637,850</b>

\* Note: Approximately 45 percent of all CESQG wastes collected comes from collection of antifreeze.

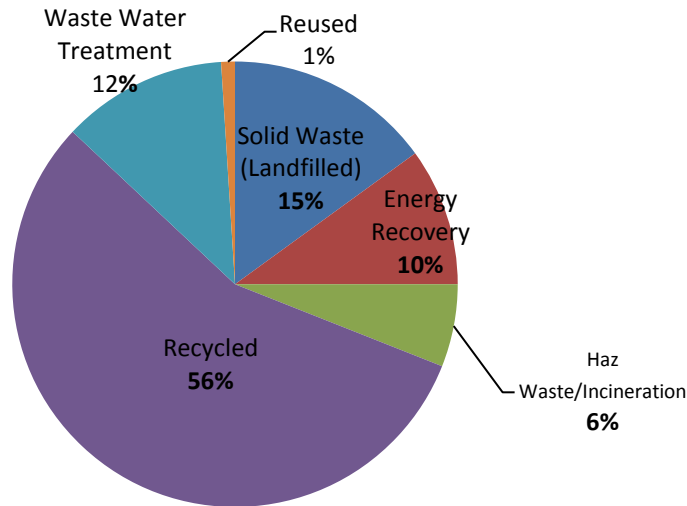
## CESQG Disposition

Sixty-six percent of all CESQG waste collected was either recycled or used for energy recovery. See Figure 5.4 for the complete disposition of CESQG wastes. There are several differences between final disposition of HHW and CESQG wastes worth noting:



- 38 percent of HHW was sent for energy recovery versus 10 percent of CESQG wastes.
- Very little HHW (less than .3 percent) was sent through a waste water treatment plant versus 12 percent of CESQG wastes.
- 8 percent of HHW was sent to a SW landfill versus 15 percent of CESQG wastes.

**Figure 5.4  
CESQG Final Disposition**



## Collection/Mobile Events

Table 5.9 represents the number of mobile and collection events held statewide from 2007-09. The number of events conducted has increased every year. However, the total pounds collected decreased each year. This drop may in part be attributed to a few jurisdictions deciding to no longer accept latex paints.

The amount of waste collected through these types of events was approximately 2 million pounds in 2009, which is a little more than 7 percent of all MRW collected in 2009, down from 8 percent in 2008 and 11 percent in 2007. The Waste Mobile in King County conducted 51 mobile events that collected a little more than 762,000 pounds of MRW in 2009.

**Table 5.9  
2007-09 Collection/Mobile Event Collection Amounts**

Type of Event	Number of Events			Pounds Collected		
	2007	2008	2009	2007	2008	2009
Mobile	63	90	99	2,963,460	1,909,138	1,574,873
Collection	51	45	42	686,737	694,049	507,311
<b>Totals:</b>	<b>114</b>	<b>135</b>	<b>141</b>	<b>3,650,197</b>	<b>2,603,187</b>	<b>2,082,184</b>

## Used Oil Sites

In 2009, facilities and collection sites reported collecting a total of 8,925,818 pounds of used oil. Used oil collection peaked statewide (12.4 million pounds) in 2004 and has steadily declined until this year. Even with the slight increase in used oil collections in 2009 (approximately 300,000 pounds), used oil collections need to be continually monitored. There are more cars on the road than ever, so one would expect this category to keep increasing. The recent trend to change oil every 5,000 miles compared to 3,000 miles and less do-it-yourself oil changers may be impacting this category. See Table 5.10 for the six counties with the highest collections in pounds per capita by county size for 2007-09.

**Table 5.10**  
**Used Oil High Collection Counties - Pounds per Capita by County Size**  
**Collected at Facilities and Used Oil Collection Sites 2007-09**

Used Oil Sites - 2007			Used Oil Sites - 2008			Used Oil Sites - 2009		
County	Size	Lbs	County	Size	Lbs	County	Size	Lbs
Mason	50-100K	8.1	Garfield	<50K	9.1	Garfield	<50K	8.0
Stevens	<50K	5.1	Stevens	<50K	4.8	Stevens	<50K	4.3
Wahkiakum	<50K	4.1	Skamania	<50K	4.0	Skamania	<50K	3.8
Skamania	<50K	4.0	Lincoln	<50K	3.5	Pend Oreille	<50K	3.8
San Juan	<50K	3.8	Pacific	<50K	3.4	Wahkiakum	<50K	2.9
Yakima	>100K	3.6	San Juan	<50K	3.2	Cowlitz	50-100K	2.9

## Statewide Level of Service

The Washington State Office of Financial Management reported that as of 2009 Washington State had an estimated 2,837,376 housing units<sup>2</sup>. MRW Annual Reports revealed there were 214,963 participants. The actual number of households served is larger because most used oil sites do not record or report numbers of participants. The actual number of households served is also larger because some participants counted at events or by facilities bring HHW from multiple households.

One way to estimate the approximate number of households served is to add ten percent to the participant values. This method gives an estimate of 236,459 participants served in 2009. This number represents 8.3 percent of all households in Washington State. Table 5.11 shows the percent of participants served statewide since 2001.

<sup>2</sup>This information was downloaded from Web site <http://www.ofm.wa.gov/>

**Table 5.11**  
**Percent of Participants Served Statewide**

Year	Percent Participants Served	Year	Percent Participants Served
2001	6.1	2006	8.6
2002	6.8	2007	9.1
2003	8.9	2008	8.7
2004	8.9	2009	8.3
2005	9.0		

## Trends in Collection

The majority of counties in Washington State have at least one fixed facility. The number of collection events held in 2009 increased from 114 in 2007 to 141 in 2009. As the population grows, collection events can be a useful strategy to reach residents inconveniently located from fixed facilities.

Overall, MRW collections leveled off between 2005 and 2007. 2009, like 2008, has seen a significant reduction in the amount of MRW collected. This is most likely due to some larger programs policy of no longer collecting latex paint and the overall state of the economy.

Also, as product stewardship programs become more prevalent in the future, collection numbers will most likely go down accordingly. The Electronics Recycling Program started collecting covered electronic products in 2009. As expected, MRW programs collected approximately 1.3 million pounds less in 2009 than 2008. MRW programs collected close to two million pounds of electronics and CRTs in 2008 compared to a little over 700,000 pounds in 2009. For more information about the E-Cycle Washington Program, see Chapter 2.

## Product Stewardship

Some other methods of managing MRW are beginning to gain wider acceptance in Washington State and across the country.

Product stewardship efforts have resulted in the statewide electronics recycling program. In 2010, the Washington State Legislature passed a product stewardship bill for mercury-containing lighting products. Work is continuing for paint and legislation is scheduled for introduction in the 2012 legislative session.

This is a positive shift in MRW management as some manufacturers are beginning to accept responsibility for the end-of-life management costs of their products versus externalizing those costs onto public agencies.

It remains to be seen what role MRW facilities will play in the future as product stewardship becomes more widespread. Will MRW facilities continue to collect products, but be reimbursed by industry for management of their products, or will MRW facilities choose to let industry find alternative locations and personnel to manage their programs?

Product stewardship principles have also guided establishment of the Take-it-Back Network in King County, Snohomish County, Pierce County, Yakima County and the city of Tacoma.

The Take-it-Back Network was set up by local governments and consists of “a group of retailers, repair shops, nonprofit organizations, waste haulers and recyclers that offer convenient options for recycling certain products that should not be disposed in the trash.” The Take-it-Back Network is a voluntary program for businesses. Due to this arrangement it can be difficult to get data on the total amount of materials brought back to businesses.

## Emerging Waste Streams

Pharmaceuticals and personal care products continue to be an area of concern for local governments and the public.

Groups like the Northwest Product Stewardship Council are working with state and local governments, NGOs, retailers and manufacturers to develop strategies to manage these emerging wastes based on product stewardship principles.

### Pharmaceuticals

Pharmaceutical wastes have drawn more and more attention from state and local governments. A USGS Reconnaissance Study from 1999 - 2000 tested 139 streams for the presence of 95 chemicals, including pharmaceuticals.

Steroids, nonprescription drugs and insect repellent were the chemical groups most frequently detected. Detergent metabolites, steroids and plasticizers generally were measured at the highest concentrations. Forty-six of the chemicals were pharmaceutically active. In 2006, another study by Eastern Washington University and the USGS analyzed nine biosolids products from seven states. The concentration of pharmaceuticals in biosolids was higher than in water and treated wastewater.



**Two tadpoles after 57 days of development in the lab. The one on the right, which has yet to sprout limbs, was exposed to fluoxetine, also known as Prozac, at 50 parts per billion.**

In 2005, 53 million prescriptions were filled in Washington State. A 2006 King County Survey found that only 33 percent of people will use all of their medication. This leaves a substantial amount of pharmaceutical waste to manage. This becomes significant from a public health standpoint. In 2004 the American Association of Poison Control Centers (62 participating members serving 294 million people) reported a total of 2.4 million exposures. Fifty-eight percent of those exposures were from pharmaceuticals.

In 2006, a new two-year pilot program started to collect pharmaceuticals at local pharmacies. Group Health sites participated initially, with Bartell Drugs participating later. Between October 2006 and September 2007, 2,972 pounds of medication were collected.

Since this time some local governments have partnered with law enforcement agencies to collect unwanted or leftover medicines. Over the last two years approximately 75,000 pounds were safely collected and disposed of by these programs.

The environmental side effects of pharmaceuticals show that aquatic and terrestrial organisms may be affected through endocrine disruption and anti-microbial resistance.

Though product stewardship legislation has not passed over the last couple of years, it will be introduced again in 2011.

## Personal Care Products

Personal care products are also becoming a concern for state and local governments. Personal care products include cosmetics, deodorants, nail polish, lotions, hair spray, styling gel, perfumes and colognes. According to industry estimates reported by the Toxic-Free Legacy Coalition:

- Consumers may use as much as 25 cosmetic products containing more than 200 different chemical compounds on any given day.
- Eighty-nine percent of the approximately 10,500 ingredients used in personal care products have not been screened for safety by the FDA or anyone else.
- One chemical of concern found in personal care products are phthalates. Phthalates are a reproductive toxin/endocrine disrupter. Some studies have shown impacts on male reproductive system development.
  - Moms with higher phthalate exposures were more likely to have boys with altered genital development including smaller penises and undescended testes (Swan et al., 2005; Marsee et al., 2006).
  - Baby boys exposed to higher levels of phthalates in breast milk had slightly, but significantly decreased testosterone levels (Main et al., 2005).

