



# Spring 2018 Mobile HHW Analysis Season Report



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## **Overview**

Since the program's inception in 1993, the Tennessee Department of Environment and Conservation (TDEC) continues to provide the Tennessee Household Hazardous Waste Mobile Collection Event services to counties to aid in the management of household hazardous wastes (HHW). Regulations for HHW are found in Tennessee Code Annotated [Title 68 chapter 211](#). To date, there have been over 1,300 one-day collection events with over 350,000 Tennessee families safely disposing over 22 million pounds of HHW.

HHW is any unwanted, spent, used household product that can catch fire easily (flammable); eat away at or irritate living tissue (corrosive, both acid and base); react violently with water or other chemicals (reactive); or is poisonous to humans or animals (toxic). Usable household products may exhibit hazardous properties but until they become a waste they are not appropriate for the HHW program.

The Mobile Collection Service is open to any Tennessee resident and is limited to households. Businesses, institutions, schools, and agri-business operations may not use this service, but can participate as a Conditionally Exempt Small Quantity Generator (CESQG) which can assist with reduced mobilization fees for proper business waste disposal. Persons or businesses interested in participating in the business waste should refer to the following web site: <https://www.tn.gov/environment/hhw/cesqg>.

Counties request mobile HHW events using a tiered priority listing provided by TDEC. Interested parties can find the tiered guidelines on the Department's website in the [Mobile HHW Collection Service Guide](#). As the county requests are submitted, the schedule is set trying to maximize access of the majority of the citizens. Higher populated counties generally have greater participation and may have more than one event per year.

## **Season Participation Analysis**

The 2018 Spring HHW (March 17<sup>th</sup> – June 9<sup>th</sup>) event season ended with 31 counties hosting 4,240 households showing a 9% increase from the previous year (see table 3) evaluated using same county participation. Three counties did not have a comparable time frame for household analysis.

Batteries, Oil, Paint, Electronics and Antifreeze (BOPAE) continue to be a focus by the counties through the year. The Department conducted eleven oil based paint and seven fluorescent lamp milk runs in Spring 2018. The frequency and convenience of BOPAE collections provides added service for the citizens and spreads the work load for the collection sites. TDEC provided laminated paint job aids that assisted counties to identify and segregate oil paint that needed to be collected. These tips for identifying latex and water based paint were useful to help solidify and manage latex paint in the solid waste stream. The Department further shared additional methods for managing discarded fire extinguishers with counties to assist with year round management of these materials and to reduce the cost associated with disposal.

The season concluded with a total of 178,324 pounds of discarded household hazardous waste that was collected in the combined 52 events (21 milk runs of oil based paint and bulbs for a total of 63,974 pounds, other mobile HHW events included in tables 1-3). The Department collected through mobile events and milk runs: oil based paint and fluorescent bulbs at county facilities throughout the year and then picked up these

materials by a contractor for proper disposal that resulted in a total cost of \$265,751.41 (milk runs, \$19,878.95 other included in tables 1-3).

#### Summary of mobile HHW materials collected (Additional Data in Tables 1-3)

- Corrosives acids (Sulfuric acid, phosphoric acid, CLR cleaner, muriatic acid, battery acid); 3,394 pounds
- Corrosive Bases (Drano, sodium hydroxide); 4,754 pounds
- Pesticides, herbicides, rat poisons, insecticides, animal medications; 29,762 pounds
- Flammables, gasoline, charcoal lighter, kerosene, paint thinners; 21,552 pounds
- Aerosols, paint, health & beauty aids, insecticides, lubricants, cleaners; 8,671 pounds
- Mercury; 93 pounds
- Oxidizers, bleach, chlorine, pool sanitizers; spa and hot tub sanitizers; 1,437 pounds

### ***Advertising***

The Materials Management Program requires advertising and information sharing. The Program created informational handouts to supplement standard stakeholder advertising requirements. Participants received information as a take away that directs them to contact information on the TDEC website. The Department shared as an outreach to the counties, recommendations for advertising and promoting the events to help maximize communication opportunities in the serviced areas. Program staff researched [Green Cleaning Products](#) and developed a handout to provide additional resources to participants. TDEC made available additional copies for distribution to participants. Handout materials summarized methods to manage used oil and the counties distributed to participants as consistent reminders of protecting and preserving our environment with particular emphasis on valued drinking water source. The Program encouraged counties and participating organizations to reach out to public utilities, business employee newsletters, social media, and other forms of information sharing. TDEC central office was very proactive with sharing schedules by using MyEmma as a platform for sending emails to interested citizens who have shared email addresses. As a result of this outreach, TVA staff shared the mobile HHW events through their newsletter to their distribution list which reached 10,000 staff and contractors in the state. Partnerships with Tennessee Poison Control, Vanderbilt Hospital Burn Center, UT Institute of Agriculture Family and Consumer Sciences, various electrical utilities shared the HHW information.

Department drug take back programs coordinated by some counties increased the take back of products and increased awareness of the hazards of pharmaceuticals in households. Additional events associated with HHW collection events at some counties included beneficial item collection with local non-profits and electronics collections.

## ***Safety***

TDEC Materials Management Program considers safety the highest priority for state, county, volunteer staff, and participants. The TDEC event staff prioritized safety by wearing high visibility safety vests, making first aid kits available and providing additional event resource materials that encourage site safety. Many event staff workers have received CPR and AED training with a goal for all staff to be prepared for unexpected situations that may occur at mobile events. Clean Harbors, the event contractor, provides an onsite chemist and additional technical staffing who assists with the proper segregation of chemicals and Department of Transportation (DOT) requirements for safe packaging and transportation.

As industries develop household materials that may cause problems for proper disposal or impacts safe management, TDEC searches for consumer based solutions. Disposal option challenges for sharps, needles, lancets, and auto inject pens caused the Program to expand this option to HHW mobile events. As participants remove these materials from the solid waste stream, the safety of solid waste staff, haulers, landfill staff and maintenance staff is greatly increased. HHW participants appreciate this added option and benefit from this expansion.

The future for HHW events looks bright as the program reaches out to the public schools across the state for identification and proper management of materials and chemicals that from science, chemistry, biology and engineering labs, maintenance and janitorial areas, automotive, wood, metal, agricultural and cosmetology trade education areas. The HHW Cleanout Program leverages school programs in distressed areas to provide increased services and benefits where geography or other factors may play the role of limiting convenient access.

The Program urges counties to submit their recommended dates by November 15, 2018 so that staff may schedule the upcoming year's events by mid-January 2019. The Department will post the mobile event schedule at <http://tn.gov/environment/hhw/schedule> for public review.

| <b>Individual Counties-Participation-Table 1 of 3 (Weight in pounds)</b> |                      |               |                     |                        |                       |                      |
|--|----------------------|---------------|---------------------|------------------------|-----------------------|----------------------|
| Event Date   | County               | Participation | Event Cost          | Cost/HH                | Cost/lb.              | Participation Rate   |
| 3/17/2018  | Hamblen              | 280           | \$8,506.51          | \$30.38                | \$1.98                | 1.17%                |
| 3/17/2018  | Montgomery           | 436           | \$22,106.33         | \$50.83                | \$2.10                | 0.74%                |
| 3/24/2018  | Fayette              | 87            | \$7,350.39          | \$84.49                | \$1.84                | 0.63%                |
| 4/7/2018   | Franklin             | 224           | \$9,627.35          | \$42.98                | \$1.87                | 1.37%                |
| 4/7/2018   | McMinn               | 33            | \$2,539.16          | \$76.94                | \$1.92                | 0.16%                |
| 4/7/2018   | Rutherford           | 221           | \$14,720.56         | \$66.61                | \$1.96                | 0.25%                |
| 4/14/2018  | Coffee               | 166           | \$9,271.02          | \$55.85                | \$2.50                | 0.82%                |
| 4/14/2018  | Sevier               | 394           | \$18,114.38         | \$45.98                | \$1.69                | 1.24%                |
| 4/14/2018  | Washington           | 96            | \$5,970.08          | \$62.19                | \$2.57                | 0.21%                |
| 4/14/2018  | Weakley              | 48            | \$3,254.96          | \$67.81                | \$1.78                | 0.36%                |
| 4/21/2018  | Cocke                | 44            | \$502.24            | \$11.41                | \$1.78                | 0.31%                |
| 4/21/2018  | Giles                | 200           | \$6,560.63          | \$32.80                | \$1.90                | 1.71%                |
| 4/21/2018  | Loudon               | 121           | \$7,596.88          | \$62.78                | \$2.82                | 0.70%                |
| 4/21/2018  | Madison              | 268           | \$11,627.97         | \$43.39                | \$2.35                | 0.71%                |
| 4/28/2018  | Bedford              | 66            | \$2,167.05          | \$32.83                | \$2.32                | 0.39%                |
| 4/28/2018  | Macon                | 15            | \$854.47            | \$56.96                | \$2.45                | 0.17%                |
| 4/28/2018  | Meigs                | 26            | \$1,782.13          | \$68.54                | \$1.98                | 0.56%                |
| 4/28/2018  | Sullivan             | 299           | \$21,809.91         | \$72.94                | \$2.16                | 0.49%                |
| 5/5/2018   | Dyer                 | 27            | \$2,217.68          | \$82.14                | \$2.07                | 0.18%                |
| 5/5/2018   | Henry                | 155           | \$7,073.38          | \$45.63                | \$4.19                | 1.23%                |
| 5/5/2018   | Williamson           | 456           | \$40,226.10         | \$88.22                | \$2.32                | 0.74%                |
| 5/12/2018  | Roane                | 110           | \$8,619.88          | \$78.36                | \$2.93                | 0.52%                |
| 5/12/2018  | Robertson            | 57            | \$6,310.55          | \$110.71               | \$2.69                | 0.24%                |
| 5/12/2018  | Trousdale            | 22            | \$2,070.56          | \$94.12                | \$3.09                | 0.72%                |
| 5/19/2018  | Carter               | 59            | \$3,576.56          | \$60.62                | \$1.82                | 0.24%                |
| 5/19/2018  | Humphreys            | 42            | \$1,986.13          | \$47.29                | \$1.88                | 0.58%                |
| 5/19/2018  | Tipton               | 93            | \$6,154.10          | \$66.17                | \$1.62                | 0.42%                |
| 5/19/2018  | Warren               | 49            | \$2,223.73          | \$45.38                | \$2.25                | 0.31%                |
| 6/2/2018   | Lincoln              | 39            | \$4,074.77          | \$104.48               | \$2.12                | 0.30%                |
| 6/2/2018   | McNairy              | 46            | \$2,304.62          | \$50.10                | \$1.60                | 0.45%                |
| 6/2/2018   | Stewart              | 33            | \$2,133.71          | \$64.66                | \$2.30                | 0.64%                |
| 6/9/2018   | Union                | 28            | \$2,539.67          | \$90.70                | \$2.34                | 0.37%                |
|  | <b>Season Totals</b> | <b>4,240</b>  | <b>\$245,873.46</b> | <b>Average \$62.32</b> | <b>Average \$2.22</b> | <b>Average 0.59%</b> |

| Individual Counties-Hazard Classes: Table 2A of 3 (Weight in pounds) |                   |                 |                  |                    |      |          |           |           |
|--|-------------------|-----------------|------------------|--------------------|------|----------|-----------|-----------|
| County   | Flammable Liquids | Non Flam Liquid | Flammable Solids | Poisonous Material | Acid | Caustics | Oxidizers | Reactives |
| Hamblen  | 2184              |                 |                  | 579                | 159  | 299      | 93        | 0         |
| Montgomery   | 1978              | 1476            |                  | 2581               | 262  | 651      | 141       | 0         |
| Fayette  | 856               |                 |                  | 760                | 84   | 95       | 7         | 0         |
| Franklin   | 765               | 370             |                  | 1405               | 119  | 137      | 5         | 0         |
| McMinn   | 310               |                 |                  | 348                | 6    | 56       |           | 0         |
| Rutherford   | 1228              | 1253            |                  | 1772               | 220  | 178      | 189       | 0         |
| Coffee   | 440               | 1344            | 11               | 814                | 137  | 112      | 121       | 39        |
| Sevier   | 1430              | 1503            |                  | 1692               | 179  | 370      | 49        | 0         |
| Washington   | 922               |                 |                  | 739                | 72   | 110      | 38        | 0         |
| Weakley  | 234               | 100             |                  | 318                | 46   | 26       | 39        | 0         |
| Cocke  |                   | 48              |                  | 60                 |      | 4        |           | 0         |
| Giles  | 595               | 350             |                  | 808                | 59   | 81       | 1         | 0         |
| Loudon   | 796               |                 |                  | 740                | 156  | 377      | 7         | 0         |
| Madison  | 1031              | 457             |                  | 1946               | 138  | 106      | 150       | 0         |
| Bedford  | 403               |                 |                  | 255                | 55   | 35       | 9         | 0         |
| Macon  | 57                |                 |                  | 98                 | 5    | 3        | 36        | 0         |
| Meigs  | 524               |                 |                  | 209                | 4    | 6        | 66        | 0         |
| Sullivan   | 1313              | 2544            |                  | 2531               | 294  | 392      | 213       | 0         |
| Dyer   | 273               | 283             |                  | 134                | 8    | 18       |           | 0         |
| Henry  | 68                | 98              | 1                | 664                | 428  | 44       | 19        | 5         |
| Williamson   | 2696              | 2165            |                  | 5762               | 457  | 940      | 133       | 0         |
| Roane  | 834               |                 |                  | 1249               | 102  | 217      |           | 0         |
| Robertson  | 281               | 292             |                  | 1222               | 66   | 71       | 2         | 0         |
| Trousdale  | 77                |                 |                  | 42                 | 18   | 12       |           | 0         |
| Carter   | 751               |                 |                  | 345                | 43   | 52       | 48        | 0         |
| Humphreys  | 266               | 371             |                  | 214                | 37   | 47       | 1         | 0         |
| Tipton   | 270               | 427             |                  | 628                | 65   | 66       | 24        | 0         |
| Warren   | 80                | 314             |                  | 497                | 22   | 6        |           | 0         |
| Lincoln  | 291               | 444             |                  | 597                | 36   | 92       | 40        | 0         |
| McNairy  | 58                | 583             |                  | 130                | 52   |          | 3         | 0         |
| Stewart  | 294               |                 |                  | 330                | 29   | 49       |           | 0         |
| Union  | 247               |                 |                  | 293                | 36   | 102      | 3         | 0         |
| Season Totals  | 21552             | 14422           | 12               | 29762              | 3394 | 4754     | 1437      | 44        |

| Individual Counties-Hazard Classes: Table 2B of 3 (Weight in pounds) |           |          |      |       |         |                   |        |        |
|--|-----------|----------|------|-------|---------|-------------------|--------|--------|
| County   | Oil Paint | Aerosols | Oil  | PCB's | Mercury | Fluorescent Lamps | Sharps | Total  |
| Hamblen  |           | 384      | 364  |       | 0       | 163               | 72     | 4297   |
| Montgomery   | 2502      | 729      |      |       | 1       | 209               | 22     | 10552  |
| Fayette  | 2032      | 97       |      | 25    | 13      | 26                | 10     | 4005   |
| Franklin   | 2044      | 251      |      |       | 2       | 52                | 4      | 5154   |
| McMinn   | 386       | 106      |      |       | 0       | 100               | 8      | 1320   |
| Rutherford   | 612       | 431      | 1168 |       | 3       | 388               | 81     | 7523   |
| Coffee   | 343       | 190      |      |       | 3       | 154               | 1      | 3709   |
| Sevier   | 4467      | 848      |      |       | 0       | 145               | 67     | 10750  |
| Washington   | 181       | 135      |      |       | 16      | 109               |        | 2322   |
| Weakley  | 906       | 97       |      |       | 1       | 50                | 9      | 1826   |
| Cocke  | 136       | 8        |      |       | 1       | 21                | 4      | 282    |
| Giles  | 982       | 429      |      |       | 1       | 134               | 12     | 3452   |
| Loudon   | 241       | 269      |      |       | 1       | 27                | 79     | 2693   |
| Madison  | 593       | 326      |      |       | 0       | 186               | 9      | 4942   |
| Bedford  |           | 87       |      |       | 1       | 75                | 14     | 934    |
| Macon  | 113       | 21       |      |       | 0       | 15                | 1      | 349    |
| Meigs  |           | 24       |      |       | 0       |                   | 69     | 902    |
| Sullivan   | 1418      | 801      |      |       | 2       | 565               | 6      | 10079  |
| Dyer   | 260       | 74       |      |       | 1       | 20                | 2      | 1073   |
| Henry  |           | 238      |      |       | 4       | 115               | 5      | 1689   |
| Williamson   | 3387      | 1627     |      |       | 5       | 132               | 35     | 17339  |
| Roane  |           | 337      |      |       | 13      | 154               | 38     | 2944   |
| Robertson  | 93        | 141      |      | 124   | 1       | 49                | 7      | 2349   |
| Trousdale  | 491       | 9        |      |       | 22      |                   |        | 671    |
| Carter   | 502       | 163      |      |       | 1       | 62                |        | 1967   |
| Humphreys  |           | 114      |      |       | 0       | 8                 |        | 1058   |
| Tipton   | 1999      | 211      |      |       | 0       | 84                | 24     | 3798   |
| Warren   |           | 58       |      |       | 0       | 8                 | 3      | 988    |
| Lincoln  | 316       | 85       |      |       | 0       | 20                | 5      | 1926   |
| McNairy  | 364       | 235      |      |       | 0       |                   | 19     | 1444   |
| Stewart  | 105       | 76       |      |       | 0       | 31                | 15     | 929    |
| Union  | 321       | 70       |      |       | 1       | 11                |        | 1084   |
| Season Totals  | 24794     | 8671     | 1532 | 149   | 93      | 3113              | 621    | 114350 |



| <b>HHW<br/>County<br/>Participation<br/>Comparison<br/>Table 3 of 3</b> |                  |                  |                     |
|---|------------------|------------------|---------------------|
| <b>County</b>   | <b>Spring 18</b> | <b>Spring 17</b> | <b>Spring 18/17</b> |
| Hamblen   | 280              | 95               | 194.74%             |
| Montgomery  | 436              | 313              | 39.30%              |
| Fayette   | 87               | 33               | 163.64%             |
| Franklin  | 224              | 211              | 6.16%               |
| McMinn  | 33               | 22               | 50.00%              |
| Rutherford  | 221              | 221              | 0.00%               |
| Coffee  | 166              | 210              | -20.95%             |
| Sevier  | 394              | 436              | -9.63%              |
| Washington  | 96               | 86               | 11.63%              |
| Weakley   | 48               | 44               | 9.09%               |
| Cocke   | 44               | 70               | -37.14%             |
| Giles   | 200              | 200              | 0.00%               |
| Loudon  | 121              | 167              | -27.54%             |
| Madison   | 268              | 200              | 34.00%              |
| Bedford   | 66               | 100              | -34.00%             |
| Macon   | 15               | n/a              |                     |
| Meigs   | 26               | 51               | -49.02%             |
| Sullivan  | 299              | 199              | 50.25%              |
| Dyer  | 27               | 65               | -58.46%             |
| Henry   | 155              | 122              | 27.05%              |
| Williamson  | 456              | 453              | 0.66%               |
| Roane   | 110              | 113              | -2.65%              |
| Robertson   | 57               | 100              | -43.00%             |
| Trousdale   | 22               | n/a              |                     |
| Carter  | 59               | 36               | 63.89%              |
| Humphreys   | 42               | 58               | -27.59%             |
| Tipton  | 93               | 112              | -16.96%             |
| Warren  | 49               | 56               | -12.50%             |
| Lincoln   | 39               | 51               | -23.53%             |
| McNairy   | 46               | n/a              |                     |
| Stewart   | 33               | 35               | -5.71%              |
| Union   | 28               | 33               | -15.15%             |
| <b>Households</b>   | <b>4240</b>      | <b>3892</b>      | <b>8.94%</b>        |

| <b>HHW County Participation Comparison Table 3 of 3</b> |           |           |              |
|---|-----------|-----------|--------------|
| County  | Spring 18 | Spring 17 | Spring 18/17 |
| Hamblen   | 280       | 95        | 194.74%      |
| Montgomery  | 436       | 313       | 39.30%       |
| Fayette   | 87        | 33        | 163.64%      |
| Franklin  | 224       | 211       | 6.16%        |
| McMinn  | 33        | 22        | 50.00%       |
| Rutherford  | 221       | 221       | 0.00%        |
| Coffee  | 166       | 210       | -20.95%      |
| Sevier  | 394       | 436       | -9.63%       |
| Washington  | 96        | 86        | 11.63%       |
| Weakley   | 48        | 44        | 9.09%        |
| Cocke   | 44        | 70        | -37.14%      |
| Giles   | 200       | 200       | 0.00%        |
| Loudon  | 121       | 167       | -27.54%      |
| Madison   | 268       | 200       | 34.00%       |
| Bedford   | 66        | 100       | -34.00%      |
| Macon   | 15        | n/a       |              |
| Meigs   | 26        | 51        | -49.02%      |
| Sullivan  | 299       | 199       | 50.25%       |
| Dyer  | 27        | 65        | -58.46%      |
| Henry   | 155       | 122       | 27.05%       |
| Williamson  | 456       | 453       | 0.66%        |
| Roane   | 110       | 113       | -2.65%       |
| Robertson   | 57        | 100       | -43.00%      |
| Trousdale   | 22        | n/a       |              |
| Carter  | 59        | 36        | 63.89%       |
| Humphreys   | 42        | 58        | -27.59%      |
| Tipton  | 93        | 112       | -16.96%      |
| Warren  | 49        | 56        | -12.50%      |
| Lincoln   | 39        | 51        | -23.53%      |
| McNairy   | 46        | n/a       |              |
| Stewart   | 33        | 35        | -5.71%       |
| Union   | 28        | 33        | -15.15%      |
| Households  | 4240      | 3892      | 8.94%        |

The 2018 Spring HHW event season ended with 32 counties hosting 4,240 households showing a 9% increase from the previous year evaluated using same county participation. Three counties did not have a comparable time frame for household analysis.



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