

# Chapter 4: Waste Management – Hazardous Waste

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## 4.1 Introduction

The 2013 Chapman University Environmental Audit, the first student driven assessment of Chapman’s environmental consideration in regards to university processes, approached hazardous materials with a dominant focus on chemicals in science labs. This was in response to problems of outdated chemicals bought in mass quantities that were corroding containers and posing danger to those around them (“Chapman University 2013 Environmental Audit, Chapter 9”). However, there was little focus on other types of hazardous waste, such as electronics, which was, is and will continue to be a prominent part of campus life as education and technology become further intertwined. This chapter of the Chapman University 2016 Waste Management and Dining Services Audit aims to encourage the university to assume responsibility for non-laboratory generated hazardous waste that is produced by students, faculty, and staff through a campus collection and drop off program.

### 4.1.1 Definition of Hazardous Waste

The stigma surrounding hazardous waste has led many people to believe that hazardous waste must be a bubbling chemical slurry that is oozing from a barrel. The danger of this understanding is that common household items, which present environmental problems when thrown into a landfill, are not understood as being hazardous at all. Yet, many items that are used in everyday life are hazardous and should not be disposed of through the usual landfill process.

The U.S. Environmental Protection Agency (EPA), the lead environmental lawmaking and regulation enforcement office for the country, has defined hazardous waste as “waste that is dangerous or potentially harmful to our health or the environment” (“Wastes”). Typically, items that contain electrical wiring, incorporate harsh chemicals, and/or are reactive make up this list. The most common household hazardous waste tends to be used batteries, used lightbulbs, empty printer ink cartridges, and electronic waste, but also includes nail polish remover, all-purpose cleaners, household appliances, and other seemingly harmless items. Electronic waste includes all manner of material from cell phones to TV screens to laptops, as well as the cables and accessories.

The environmental damage that household hazardous waste items can pose is significant. An improperly disposed battery, thrown into a landfill rather than handled at a specialized battery recycling facility, can result in leaching, where the chemicals inside the battery break through the battery casing and, if not properly contained by the landfill lining, can contaminate groundwater (Frazer, Plous). Leaching also releases metals found in batteries, like cadmium and nickel, which are carcinogenic, and have been proven to generate cancer in humans (Adams, Passarelli, and Newcomb). All hazardous waste items are classified as hazardous because they result in dangers like those listed above, which may not be visible at first glance or even until long after their use for humans has finished. While a single battery in a landfill may seem trivial, the widespread use of batteries, and thus the large volume of

batteries that need proper disposal, demonstrate the severity of this issue. Also, batteries are among the smallest forms of household hazardous waste, so when larger items, with greater amounts of hazardous components, are considered, the danger of improper disposal is more apparent.

This audit will specifically focus on waste that qualifies as hazardous by the EPA definition, and that is present in most households and therefore will be present for students, faculty, and staff at Chapman. Most importantly, the waste that this chapter is focused on refers to that which is the product of a student, faculty, or staff member of Chapman, but which is *not* produced on campus; therefore, household hazardous waste produced in residence life rooms or off campus houses, like a personal computer or a lightbulb from a desk lamp, is included in this term.

Due to the wide range of waste that qualifies as household hazardous waste, this chapter will focus on waste that can be handled through current university hazardous waste processes, which will be explored in section 4.2 and 4.3. Thus, this chapter of the audit is centered around increasing proper disposal of batteries, light bulbs, cell phones, cords, ink cartridges, laptops, and other electronics produced by students, staff, and faculty, since these are items for which the university is most likely to have proper disposal processes already in place, given that the university uses these items as well. For resources on identifying other types of household hazardous waste and following proper disposal procedures at home, please refer to the Resources section, 4.7.1, at the end of this chapter.

## 4.2 Chapman's History Concerning Hazardous Waste

As of the 2013 Audit, Chapman University's practices regarding disposal of hazardous materials had the university designated as a Small Quantity Generator (SQG), meaning less than five tons of hazardous waste were produced annually. This designation comes from the EPA and entails regulations concerning how long waste can accumulate, how waste is managed on-site before removal and disposal, and other aspects of hazardous waste collection ("Categories..."). It is unclear how comfortably the university fits within this designation, and whether the collection of student, staff, and faculty personal hazardous waste and disposal through proper channels would change the university's classification to Large Scale Generator, which has different rules that would take further effort to accommodate. Therefore, it is important to consider the political and logistical reasons why the university might not want to take full responsibility for disposal of student, staff, and faculty personal hazardous waste when advocating for changes to the university hazardous waste disposal process.

The hazardous waste produced by university activity is handled through the Risk Management department, which has located regional companies for each type of hazardous waste, since the disposal process for batteries is different than that of computers, and so on. Each company goes through the university Request for Proposal (RFP) process, which confirms that the hazardous waste will be handled, broken down, and disposed of properly, so that none of dangerous components end up in landfills, get sent overseas for disposal, or put workers in danger during the disposal process.

However, it is unclear whether the established processes account for all manner of hazardous wastes produced by the university and its attendees. The university currently

operates from a point of predominant legal precaution with regards to disclosing their hazardous waste handling processes, and so no information about the procedures and scope of their processes were disclosed during the work of this audit. Anecdotally, through discussions with the campus Sustainability Manager, Mackenzie Crigger, it is understood that the university currently has RFP processes in place to handle electronic waste. However, it is unclear exactly how Risk Management deals with a portion of hazardous waste generated on campus that is not covered under the e-waste RFP. However, it is assumed that the Risk Management department has already built a diversion system that directs all campus generated hazardous waste to the proper disposal locations.

According to the 2013 Audit, there was a space on campus that served as a collection area for student generated hazardous waste. However, as of 2016, no one could identify this space or where it had been in Hashinger Science Center, and an email to the Director of Risk Management, Allan Brooks, confirmed that the university does not currently collect any hazardous waste items produced by the students, staff, or faculty.

Yet the need for a collection system is high, as students, staff, and faculty are directly responsible for a considerable portion of hazardous waste in the form of personal items reaching the end of their life. As of 2006, the average American is estimated to own over nine electronics at any given time, which does not even include a count for other forms of household hazardous waste like used lightbulbs (Saphores et al., Statista). Given that each individual may have a laptop, a smart phone, a tablet, a desk lamp, a printer, a desktop computer, a microwave, a calculator, an electric razor, a hairdryer, batteries, lightbulbs, and so on, there are a lot of objects which need to be diverted from landfills for proper disposal. And given the high obsolescence rate for technology, tossing old tech for new is occurring at an increasing rate that requires greater proper waste disposal effort.

Yet many students, staff, and faculty do not recognize hazardous qualities in these objects, such as the fact that the object contains mercury or electrical wiring that would necessitate a separate disposal process for this object outside of the usual landfill process. According to the 2016 Chapman University Environmental Survey, at least 30% of student, faculty, and staff surveyed were unaware that household hazardous waste requires a specialized disposal process. If this trend is true for the entire university, an estimated 2,376 current Chapman students may be tossing an old lightbulb in the trash along with the nonhazardous lint from their drying machine, and this number speaks nothing of the students who are aware of the need for proper disposal but choose to improperly dispose of hazardous waste due to convenience or financial reasons.

However, given that introducing proper hazardous waste disposal habits will have a lasting impact on each individual throughout their life, and thus beyond Chapman University, providing a cohesive and comprehensive understanding that builds environmentally conscious habits concerning how to dispose of hazardous materials should be a priority. Ensuring that the process for collection and disposal of student, staff, and faculty generated hazardous waste is simple, user-friendly, and encourages proper disposal is equally important. Therefore, the goal of this chapter of the 2016 Audit is to encourage proper hazardous waste recycling practices among students, staff, and faculty by building a supportive hazardous waste collection program for student, staff, and faculty generated waste, which should be matched with publicity and

educational efforts, some of which are discussed in Chapter 1 and 2 of this audit, to encourage proper use of this program.

#### 4.2.1 Past accomplishments

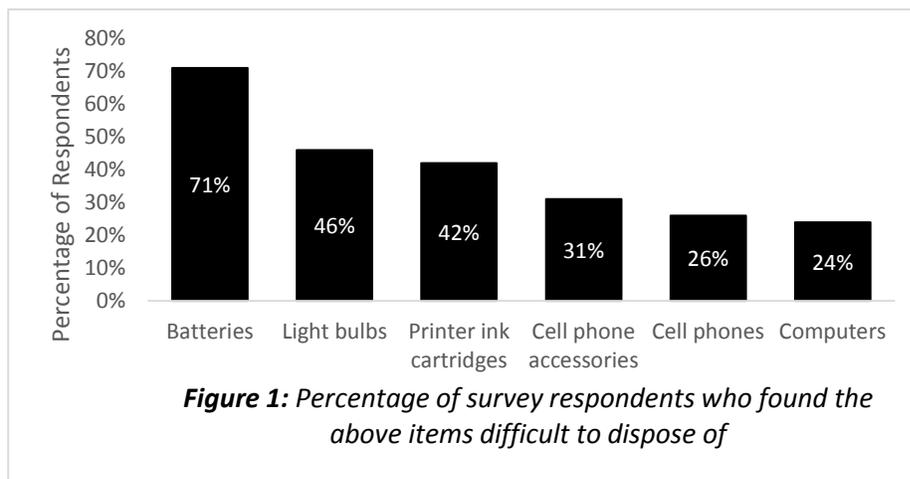
According to the 2013 Audit, Chapman did offer a student hazardous waste collection program through a drop off site located in Hashinger Science Center. The previous existence of this option offers hope that it can be an option for future hazardous waste disposal. Given that 48% of students, faculty, and staff surveyed cited convenience as the greatest barrier to making more sustainable choices in their lives, an on campus collection program that provides this convenience could enable students, faculty, and staff to make sustainable choices, especially with regards to hazardous waste.

The past few years have also seen improvements in documenting how the university handles hazardous waste. Although the Risk Management team declined to disclose what campus generated hazardous waste items they currently accommodate, to the best of this chapter’s knowledge, the university now has cemented processes to keep track of how much hazardous waste they generate and has procedures that ensure each type of waste reaches proper disposal. By determining these processes for university generated hazardous waste, the university has also set up paths to handle student, staff, and faculty generated household hazardous waste, which would then need a collection program to be incorporated into the existing framework.

### 4.3 Current Status

#### 4.3.1 Identifying Household Hazardous Waste

Though there are many household items which qualify as hazardous waste, not all of them will show up in student, staff, and faculty living spaces. In order for the university to understand the feasibility of taking on student, staff, and faculty generated hazardous waste, the items which are most often improperly disposed of among the university population must be identified,



so that university programs and services can be tailored towards these items. According to the 2016 Survey, 71% of respondents have significant trouble properly disposing of used batteries, while 46% have trouble disposing of used light bulbs and 42% have trouble disposing of printer ink cartridges (see Figure 1) (“2016 Environmental Survey”).

A need for campus coordinated collection of household hazardous waste is reinforced by findings during the residence hall waste audits. On two of the waste audits of Henley Hall, household hazardous waste was recovered. On March 4<sup>th</sup>, 8 batteries, 1 light bulb, and 2 headphone sets were found, and on April 22<sup>nd</sup>, 7 batteries, 1 Mac laptop charger, 1 USB thumb drive, and 1 remote control were found (April 22<sup>nd</sup>'s collection is visible, minus the thumb drive, in Figure 2). The presence of a few household hazardous waste items at both audits indicates that students are inhibited from following proper disposal procedures, though the reasons for this have not been determined. Given that waste from Henley Hall is collected every two days, and that in a single two-day period, almost 10 items were found from a single residence hall, these findings raise concerns about the volume of household hazardous waste from Chapman students, staff, and faculty entering landfills. Though an isolated handful of batteries may not seem like a significant problem, the findings signify a handful of batteries every two days from a single residence hall. For perspective, Chapman has eight residence halls/apartment complexes and most Chapman students who live in these quarters are there for about nine months out of the year, or some 270 days a year. Though further residence hall waste audits would help substantiate an understanding of how large the volume of hazardous waste coming out of these halls may be, even a small amount of batteries can result in leakage of chemicals into waterways if not disposed of properly, and this leaching poses serious health threats both to humans and to surrounding ecosystems. With this threat in mind, any number of batteries that are not properly disposed can be substantially damaging. And of course, the battery case study above says nothing of off-campus housing hazardous waste disposal volumes, nor of other types of household hazardous waste, which contain other chemicals, and thus pose different threats to humans and the environment.



**Figure 2:** Household hazardous waste recovered from the April 22<sup>nd</sup> Henley Hall waste audit

#### 4.3.2 Drop-off Zone for Hazardous Waste

Other well-known universities, like University of California Irvine and Chapman's aspirational university, Tufts, are tackling student, staff, and faculty generated waste. One common way of collecting this waste is through a drop off program where a specific room is made accessible for household hazardous waste, and the university directs objects from this room into the hazardous waste processes it already has in place for university generated hazardous waste. Chapman currently has no such drop off zone, though the need for one is present. However, the success of a drop off program depends on understanding student, staff, and faculty needs.

Major elements of making this collection program effective center on accessibility and understanding. The physical location for the drop off center would ideally be known and recognizable by all university individuals, be in location that is near the hub of campus activity

rather than out of the way, and would be a room or area that can safely store hazardous waste without dangerous temperature or weather changes. At the same time, the location would be ADA accessible and would offer university friendly hours that take into account the wide-ranging schedules of university students, staff, and faculty, who may need nontraditional business hours to drop off their waste.

Other factors, such as an obstacle free path to the room and a large doorway to accommodate bulkier items, would also be important to consider. Integrating this program with a partner collection service, like the current Chapman work order system, that lends help to students, staff, and faculty who cannot bring their hazardous waste in on their own (due to size, weight, or other complications) would also promote the success of this program.

To create a collective university body that knows how to properly dispose of hazardous waste and a program on campus that allows them to do so requires new data collection. In terms of quantitative data, it would be important to understand how close the university is to surpassing the SQG annual five-ton limit, and to understand how much hazardous waste most students, staff, and faculty direct to landfills every year. Communication with the Risk Management department on the specifics of their current university generated hazardous waste quantities will enable a better understanding of the capacity of the university to take on this responsibility. Identifying purchase patterns for electronics and future hazardous waste (i.e. lightbulbs and batteries) on campus would also allow predictions regarding how the university will interact with this SQG limit in the near future, as well as aid in anticipating the financial requirements of maintaining this program.

Currently, some 70% of students, staff, and faculty surveyed are aware that household hazardous waste requires its own disposal process (“2016 Environmental Survey”). Yet this leaves 30% of the survey respondents who do not understand why hazardous waste cannot go to landfills, so publicity and educational campaigns for a student, staff, and faculty hazardous waste drop off center are still important for the success of the program. Since the majority of students, faculty, and staff generally understand what hazardous materials are, the majority of the education needed for effective program use already exists and publicizing the drop off area along with ensuring its accessibility will allow students, faculty, and staff to build proper hazardous waste disposal habits.

To understand student, faculty, and staff needs surrounding the drop off area, survey participants were asked to “Check all of the following that you have trouble disposing of properly,” with a list of hazardous materials, which provided visibility as to which hazardous waste items students, staff, and faculty need help disposing. These responses, which are visible in Figure 1 from section 4.3.1, enable future planners to shape the student, staff, and faculty drop off program by ensuring that they prioritize the accommodation of these items.

#### 4.3.3 Goodwill Electronic Waste Recycling Program Partnership

Another project currently being looked into would be the feasibility of connecting with Goodwill’s Second Life program for used and working electronics. Adding this collection service, which takes working electronics to schools or other groups who will use them, would lower the amount of hazardous waste produced by the university, while transferring the bulk of the hazardous waste disposal process off of university shoulders. Since the university would only need to provide a temporary holding area for these electronics, this option would require

mostly organization resources, and would expand opportunities for others in the Orange County area by providing jobs and training through Goodwill. Support for a program like this is high among the Chapman community, since 91% of survey respondents said they would donate used but still working electronics if all they had to do was drop them off on campus, and 73% of respondents said they are more likely to donate unwanted items than to throw them away or trade them (“2016 Environmental Survey”). Since this service requires a minimum of twenty electronic waste items per pick up, this option could work well in conjunction with sporadic mid-semester or end of year electronic waste collection drives, as discussed later in section 4.5.2. Other universities, like Tufts, use this method for collecting student generated hazardous waste (“Recycle”). This chapter of the 2016 Audit does propose an expansion to Tufts’ program to include staff and faculty waste, as previously stated.

#### 4.3.4 Residence Hall Hazardous Waste Collection Bin Trial

To better understand which items students need to properly dispose, part of the 2016 Audit involved a two-week household hazardous waste collection program in April in the Pralle-Sodaro Residence Hall, with the aim of collecting small household hazardous waste items from residence halls. A copy of the flyer used to publicize this collection program is visible in **Figure 4.3.**, and copies of this flyer were used to mark the collection bin, which is visible in **Figure 4.4.** This bin was labeled “electronic waste,” which is a subset of hazardous waste, to expedite an understanding of the program, since many people are more familiar with what items constitute electronic waste and there was not time to fully educate students, staff, and faculty on which items qualify as hazardous waste. The data from this collection program was minimal, as students did not utilize this collection bin. However, since items like batteries and power cords, which this bin program accepted, were found during the Henley Hall waste audit, as mentioned earlier in 4.3.1, there is a need for convenient proper disposal programs like this. An expansion of this program to include a bin in every residence hall or main campus building, a longer time period of collection, and greater publicity for the collection drive would provide a better

## Electronic Waste Collection Bin Program

These items can't go to landfills but can be hard to properly dispose! Drop them off in the Pralle hall office box from April 11<sup>th</sup> through April 22<sup>nd</sup> and we'll handle their disposal for you. This two-week collection drive is part of the 2016 Environmental Sustainability Audit and the results will be used to improve university understanding regarding electronic waste disposal needs for students. Items left in this bin cannot be returned.



**Figure 4.3:** Pralle-Sodaro collection bin program flyer.

understanding of the how effective this approach would be at Chapman. Please refer to the Resources, section 4.7.1, for websites offering collection bins specifically made for this purpose.

## 4.4 Concluding Assessment

### 4.4.1 Areas Where Chapman Is Doing Well

The Risk Management team at Chapman is aware that most Chapman university students, staff, and faculty do not pursue the specialized proper disposal processes for household hazardous waste when left to make this effort with little university support. In addition to this awareness, it is understood that the Risk Management team has procedures in place to handle all hazardous waste types produced by the university. Both the awareness and this precedent for hazardous waste disposal procedures are key to future action.



**Figure 4.4:** Electronic Waste Collection Bin placed in Pralle-Sodaro Residence Hall.

### 4.4.2 Areas in which to improve

The university should establish and maintain a hazardous waste collection and disposal program for students, staff, and faculty. With the understanding that many of the hazardous waste items produced by students, staff, and faculty are essential to attending a university or holding a job at the university, university collection of these items will ease the lives of university individuals while reinforcing core values of university, one of which is identifying as a global citizen, a value which can be found in the Chapman University Mission Statement (“Chapman University at a Glance”). Household hazardous waste has historically been handled in contradiction to the concept of global citizenship since many companies shipped hazardous waste to developing countries for processing, which generated environmental and human rights problems across the globe before the passage of the Basel Convention, which outlaws this practice. Though Chapman has not participated in this practice, ensuring that all household hazardous waste connected to the university reaches proper disposal remains significant. It is important to note that being a global citizen requires an awareness of how one’s choices impact those around the world, and decisions regarding hazardous waste have direct, international consequences.

Given that proper disposal of hazardous waste may be confusing or difficult for some people, and that the university already has procedures in place to handle all of its own hazardous waste, the knowledgeable refusal to collect these personal hazardous waste items from university students, faculty, and staff is problematic. Between data from the 2016 Survey and findings during the Henley Hall waste audit, it is apparent that a significant amount of hazardous waste generated by students, staff, and faculty is dangerously sent into landfills, despite having the foundation for a collection and disposal system that can prevent this.

### 4.4.3 Existing gaps in knowledge

This audit was unable to collect data on how much household hazardous waste the average Chapman student, staff, or faculty member will need to dispose of in a given year. This information is vital to assessing the feasibility of the university taking responsibility for student, staff, and faculty hazardous waste, since each individual represents a multi-year commitment (and in the case of staff and faculty, this may be a multi-decade commitment). Given Chapman's push for expansion in the size of its overall student body, understanding the waste produced per person also allows administrators to project for how great their hazardous waste capacity would need to be if they decide to take responsibility for student, staff, and faculty generated waste.

Another gap in knowledge, which has been previously mentioned, is that Chapman's policies and procedures surrounding campus generated hazardous waste disposal are still largely undisclosed and thus only fully known by Risk Management. Future efforts in regards to a student, staff, and faculty hazardous waste collection program would benefit from disclosure about these processes.

## 4.5 Recommendations

### 4.5.1 Easy

Publicizing options for disposal of student, staff, and faculty household hazardous waste that occur outside of the university would be a step in encouraging proper disposal. If the university is not willing to undertake the entire collection and disposal process, then students may not be aware that an option exists beyond throwing their waste in a landfill. Passing out a list of nearby locations or collection programs that accept household hazardous waste would be a great way to provide these resources to the Chapman community without taking on the full financial and logistical responsibilities of handling student, staff, and faculty hazardous waste. Please refer to section 4.7.1 for resources regarding hazardous waste drop off locations. However, as 48% of survey respondents cited convenience as the greatest barrier to making sustainable choices, and some household hazardous waste items require substantial effort to dispose of properly, students, staff, and faculty are often not inclined to pursue this path ("2016 Environmental Survey").

Another option for administrators would be to run a limited student, staff, and faculty generated hazardous waste collection program through bins placed in residence life and a few buildings on campus, much like the current back end battery collection bin program used by Facilities. These bins could be placed in areas that facilitate easy pick up along the usual trash and recycling collection routes, and could be collected and passed along to be handled with university generated hazardous waste. By keeping the bins small in size, this program could divert items like batteries or old cell phones from dangerously entering landfills, without making the university responsible for larger items like printers or TVs which can be more difficult to dispose. This program would need to follow the clear signage guidelines suggested in the 1<sup>st</sup> and 2<sup>nd</sup> chapter of this audit to ensure that there is minimal confusion about the purpose of these bins.

#### 4.5.2 Moderate

A slightly more intensive option to begin to tackle student, staff, and faculty generated household hazardous waste would be to run a collection program at the end of the school year, when students are more likely to be moving out and into new places, and staff and faculty may be changing offices. During the moving process, the amount of waste produced is often several times that of any other collection period, and household hazardous waste that has been forgotten during the year is often thrown into landfills in larger volumes. Intervention during this transitional time could divert large volumes of hazardous waste from landfills.

Granted, the move out time period is a high activity time, and there are many aspects that would need to be accommodated. However, this collection drive could also occur at other points within the semester that are less stressful. Having a collection program over a couple days within the semester, during Earth Week, for example, would also be good option for collecting student, staff, and faculty generated household hazardous waste.

#### 4.5.3 Challenging

Ultimately, this chapter of the 2016 Audit hopes to recommend that the university create a full year-round collection program to accommodate the disposal of student, staff, and faculty generated hazardous waste. This is a significant undertaking, and as such, it is listed under the challenging section of recommendations. The previous two recommendations sections offer incomplete, but foundational solutions, because they provide options for disposal that limit which items can be brought in or the times when these items are taken. A holistic approach to student, staff, and faculty generated household hazardous waste would remove these limitations. One successful route for such a program would be a permanent location on campus that serves as a collection room for student, staff, and faculty generated household hazardous waste. This permanent location may look like a room in a building, or a bin placed in a section of a walkway or loading area, or even in a parking space. However, the importance of this suggestion is that, while the collection area may move, it cannot disappear entirely, as seems to have happened after the 2013 Audit.

If the amount of student and staff generated waste does not go beyond the SQG status the university currently possess, and all campus individuals can become informed on proper hazardous waste disposal, and an accessible location and collection procedure can be created, then the many factors that have led to improper hazardous waste disposal by students, staff, and faculty can be ended in favor of an environmentally conscious path. Even if these three major facets do not perfectly coalesce, lessons from the survey data and research over the course of this audit will hopefully point out adjustments and changes that can improve how the university handles student, staff, and faculty generated hazardous waste collection and disposal.

#### 4.5.4 Future areas of research

Education among students and staff concerning their disposal practices offers a great continuation of this audit's goals. Many university individuals are unfamiliar with how their everyday items may affect the environment once they have been thrown into a landfill, and as a result, do not understand these items as hazardous in the first place. Therefore, inquiry into

the best methods for communicating how to identify items that require specialized hazardous waste disposal is important. Please see Chapter 1 and 2 of this 2016 Audit to explore suggestions for education in sustainability.

## 4.6 Contacts

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Risk Management Department – Karen Swift ([swift@chapman.edu](mailto:swift@chapman.edu)) and Allan Brooks ([abrooks@chapman.edu](mailto:abrooks@chapman.edu))

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#### 4.7.1 Resources for Proper Household Hazardous Waste Disposal

The following websites have been compiled as resources that can help consumers identify household hazardous waste, including items outside the focus of this chapter of the audit. Beyond lists of household hazardous waste, these websites also clarify proper treatment and collection of these items before the trip to the drop off facility, and can direct consumers to disposal locations in their area.

- EPA Household Hazardous Waste site: <https://www.epa.gov/hw/household-hazardous-waste-hhw>
- Orange Country Waste and Recycling Household Hazardous Waste drop off locations and procedures: <http://oclandfills.com/hazardous/>
- Orange County Waste and Recycling Household Hazardous Waste printable sheet:
  - <https://www.ehs.uci.edu/programs/enviro/HouseholdChemicalElectronicWasteDisposal.pdf>
- Orange Country Watersheds Hazardous Waste disposal list and website: <http://ocwatersheds.com/wphotline/disposal>
  - The following options offer consumer items that center around household hazardous waste collection. Given Chapman’s focus on presentation and appearance, these items could offer professional collection products that would fit with the campus aesthetic.
- Collection Bins from Busch Systems: <http://www.buschsystems.com/recycling-waste-container-bin-cart-categories/specialty-recycling-and-waste-bins/>
- E-waste, Printer Cartridge, and Cell Phone Recycling Bins from RecyclingBin.com: <http://www.recyclingbin.com/E-Waste-Printer-Cartridge-Cell-Phone-Recycling-Bins-1>