

Zero Waste and Maximum Fun: How 2,800 People Used Sustainable Practices and Made CHPRC History – 14209

Sara Austin, CH2M HILL PRC

ABSTRACT

In 2012, CHPRC staff went for the “brass ring” of recycling and sustainability by proposing to make the largest company event of the year a “Zero Waste” event. They successfully diverted more than 1,200 pounds of waste from landfills for a 95% success rate. In 2013 CHPRC built upon that success and achieved a 98.6% diversion rate.

Beyond the waste minimization success this effort provided, there were additional environmental benefits as well, such as:

- Reduction in generation of greenhouse gas from landfill disposal. Organics in landfills produce large quantities of methane. This reduction is important as methane has 23 times the effect on ozone degradation as CO₂.
- Reduction in the generation of toxic or hazardous constituents that otherwise would be created through the breakdown products of organics, metals and other inorganics.

There were also considerable cost savings realized from the zero waste efforts.

The CHPRC All-Employee Family Picnic provided a fun day with family and co-workers. It also put sustainability into action and showed the community that a zero waste picnic can be accomplished by a group of employees dedicated to protecting the environment and attendees willing to “pitch-in”.

INTRODUCTION

As part of its awards and recognition program, CH2M HILL Plateau Remediation (CHPRC), a prime contractor for the U.S. Department of Energy at the Hanford Site, sponsors a summer picnic for all employees and their families. The picnic includes food, drinks, snacks, entertainment and other amenities and allows the entire company to gather and enjoy this social event. Typically, this event has been run like any other well-planned, large attendee gathering. Waste materials from the event include uneaten food, food scraps, plates/utensils, cups/cans/bottles, paper/wood/plastic, with smaller amounts of other miscellaneous materials. In the past, numerous trash cans, and dumpsters were set up to collect this waste, all of which was then sent to the local landfill for disposal.

As part of our ISO 14001-certified Environmental Management System (EMS), and company culture to reduce waste, an environmental objective was established for fiscal year 2012 to organize and execute a zero-waste event. The team decided to aim high and selected the biggest CHPRC event – the company picnic – as the first zero waste event.

METHODS

To begin designing the annual picnic, food and material vendors are identified, games and activities are planned, music and entertainment is arranged, and tear-down and waste hauling is organized. The waste-hauling component is considerable given the number of attendees; between 2500 and 4000 persons. Waste materials that are generated include uneaten food, food scraps, plates and utensils, cups, cans, bottles and bottle tops, paper, wooden sticks, plastic, and small amounts of other miscellaneous materials. In years past, numerous trash cans and dumpsters were set up to collect this waste, all of which was then transported by the city to the local landfill for disposal.

The picnic committee reviewed the inputs and outputs of previous picnics, and the vendors that were selected to perform the various services. The Richland-area vendors offered no or limited recycling options. For example, caterers had no way to recycle or divert food waste. Paper and plastic could be recycled, but particular arrangements would need to be made to segregate waste; this effort was not a typical service offered by any caterer. In most cases, wastes were simply dropped into dumpsters and taken to the local landfill.

With the zero-waste target in mind, the team evaluated every waste stream, and methods that could be employed to divert it all from landfills. They challenged the vendors to incorporate recycling practices into their services. The most difficult item turned out to be food waste. The most direct and available option for this turned out to be a local pig farmer. The pig farmer, (and presumably, her pigs) was delighted to receive this high-quality food source, just in time for the Benton-Franklin County Fair.

The team compiled a “checklist” of questions for planning a zero waste event. These apply specifically to an event held off-site but many questions are applicable to all events—onsite or off, large or small.

- Is the site willing to support the zero waste goals of the event?
- Is the site convenient, near bus lines or mass transportation?
- Does the site have a kitchen to set-up the food and wash dishes?
- Does the kitchen have reusable tableware (plates, utensils, glasses, cups, etc.)?
- What, if any, is the additional cost for reusable tableware?
- If reusable tableware is not available is recyclable or compostable available?
- Are cloth napkins and cloth table cloths available?
- If paper products will be used are they made from post-consumer paper?
- Has the site agreed to use minimal packaging and produce minimal waste?
- Does the site have any experience with food waste and recycling?
- Is the site willing to contact Clayton Ward for recycling containers?
- If compostable products are used, where are they being composted?

Implementation: 2012

Brenda Becker-Khaleel, the CHPRC EMS coordinator in 2102, did a tremendous amount of work behind the scenes. She called recycling and waste collection centers in the Tri-cities. She located the closest composting facility (near Spokane, WA, two hours away). She got quotes for trucking compostable waste to the facility. She gathered bins and special bags from Waste Management

WM2014 Conference, March 2 – 6, 2014, Phoenix, Arizona, USA

for collection of recyclables. In cooperation with the communications department, she educated attendees through meeting presentations, flyers, emails, safety tailgate slides, posters, and many other means.

Even though she took on the bulk of the Zero Waste planning, she couldn't do it alone. The picnic committee recruited employee volunteers to staff the two "sorting stations." The company bought special blue aprons for the 50 or so volunteers and to wear during 30-minute shifts at the tables. (See figure 1).



Figure 1: Apron-clad CHPRC volunteers, 2012



Fig. 2: 2012 Sorting Station

The Caterer

"The Green Team" in EMS and Business Services procurement staff worked together to create contract language for the contract with the picnic caterer. A local restaurant, Country Gentleman, was chosen to provide food and beverages (alcoholic and non-alcoholic) for the event. That included two large food lines, two to three beverage (Coca-cola) trucks, large water containers, and a beer and wine garden. Some of the ways we reduced our waste footprint was to request foods served "family style" in large platters or bowls (see Figure 3), chicken without bones (for the pig!), cookies and desserts on trays instead of individually wrapped, etc. Country Gentleman

WM2014 Conference, March 2 – 6, 2014, Phoenix, Arizona, USA

recycled wine cooler glass and offered beer in compostable vegetable-based plastic cups. In fact all of the tableware was specially ordered to be either compostable or recyclable, including the potato-based cutlery, aptly named SpudWare®.

Picnic staff tried to make recycling and sorting as painless as possible by making the two sorting stations obvious and accessible. Additionally, event staff removed or covered up all of the trash receptacles in Howard Amon Park, where the event is held. This effectively thwarted the ability to throw anything away, and made recycling seem easy and effortless.



Fig. 3: Foods served to minimize packaging waste

By the numbers, the effort for this event was amazing. A total of 95% of all the waste generated by the approximately 2,800 attendees was diverted from landfill. This value was determined by weighing the total waste generated (68 lbs.) and dividing this by the weight of the material diverted from the landfill (1,263 lbs.). While not quite hitting the “zero” mark, it was a remarkable achievement. This effort can best be visualized by the scant 2 trash bins of waste that was generated by this 2,800 person event.

WM2014 Conference, March 2 – 6, 2014, Phoenix, Arizona, USA

Table I: 2012 by the numbers

Waste	Diversion Technique	Weight of Diverted Waste (lbs.)
Food, waste	Local farmer	222
Plastic	Separate, to recycle bin	4
Glass beverage containers	Separate, to recycle bin	349
Metal beverage containers, caps	Separate, to recycle bin	3
Cardboard	Separate, to recycle bin	105
Plates, utensils, paper, cups	Separate, to compost bin	580
Misc., food wrappers, non-recyclable brought in by attendee	BDI trash receptacle	(68)
TOTAL DIVERTED		1,263 pounds

Implementation: 2013

2013 brought about some changes, including a new EMS coordinator at CHPRC. After riding the wave of success and good press from the 2012 picnic, the 2013 committee was able to take a much smoother path to zero waste success. To start, CHPRC put language into the off-site contract request for quote (RFQ) that went out to local caterers. An excerpt from this new contract language:

The Contractor shall perform work under this contract consistent with the CHPRC Zero Waste Policy.

The goal of a Zero Waste event is to plan ahead and only use materials that are locally recyclable or reusable (no materials have to be landfilled). There will be no trash cans at the event; instead “Zero Waste Stations” consisting of recycling bins will be available to participants.

WM2014 Conference, March 2 – 6, 2014, Phoenix, Arizona, USA

The Contractor shall provide monitoring, and measure (weigh) Zero Waste Stations, as needed. Measurement data will be provided to CHPRC to verify environmental performance relative to Zero Waste goals. The Contractor shall ensure that their employees are aware of their roles and responsibilities at a Zero Waste event and how these requirements affect their work performed under this contract. At a minimum the Contractor shall ensure:

- *Food and beverages are served on reusable service ware.*
- *Reusable/compostable/recyclable eating utensils are used.*
- *Cloth napkins and cloth table cloths are used, as appropriate.*
- *Condiments (butter, jelly, sugar, creamers, ketchup, mustard, mayonnaise, etc.) are served in reusable bulk serving containers.*
- *Food scraps are used for animal feed or composted.*
- *Glass, paper, plastic, metal, aluminum, and cardboard are recycled.*
- *Individual “box lunches,” Styrofoam, non-recyclable plastic, plastic-coated paper products, plastic straws, plastic bags and plastic wrap are not used.*
- *Clean recycling collection containers are provided, clearly labeled, monitored, and measured as appropriate.*

Collected materials (including garbage) shall be weighed and reported to CHPRC within five working days of event completion.

By including these requests as part of the contract, a good deal of the effort was placed on the caterer and less on the picnic committee staff. However, careful oversight and plenty of volunteers were still required on the part of CHPRC. A local high school dance team was “hired” to help man the sorting stations alongside CHPRC volunteers. Before the event the dance team attended a presentation explaining what the zero waste concept was all about and what to expect. The caterer made a donation to the dance team fund in exchange for their services.

In fact, the caterer embraced the “Zero Waste” concept for their own staff as well. They even had T-shirts made to wear during the picnic and started advertising their newfound expertise in catering zero waste events.



Fig. 4: Zero Waste caterer T-shirt



Fig. 5: Dance team and CHPRC volunteers sort waste, 2013

WM2014 Conference, March 2 – 6, 2014, Phoenix, Arizona, USA

As part of the contract, the caterer procured compostable paper products and cutlery and arranged for offsite transportation of all compostable and recyclable materials to Barr-Tech, the Sprague, Washington, facility used in 2012 for compost. Barr Tech weighed all the waste streams and provided a receipt when they received the picnic waste from the caterer. Another difference in 2013 was the solution for the food scraps. The pig farmer from 2012 no longer needed additional food (it was after the Fair this year!) so Country Gentleman arranged to have the food composted at Barr Tech.

Table II: 2013 by the numbers

Waste Stream	Amount in #
Food scraps for compost	350
Compost (plates, cups, utensils, paper towels, napkins)	608
Glass (wine coolers & wine bottles)	486
Cardboard	245.5
Plastic	0
Aluminum	.5
Bottle Caps	2.5
Garbage	24
TOTAL DIVERTED	98.5% (1,695 lbs.)

DISCUSSION

Beyond the waste minimization success this effort provided, there were additional environmental benefits as well, such as:

- Reduction in generation of greenhouse gas from landfill disposal. Organics in landfills produce large quantities of methane. This reduction is important as methane has 23 times the effect on ozone degradation as CO₂.
- Reduction in the generation of toxic or hazardous constituents that otherwise would be created through the breakdown products of organics, metals and other inorganics.
- Less fuel was required by waste haulers to transport and dispose of the waste to the landfill. Less fuel-related emissions generated.
- Compost and recyclable materials were reclaimed for reuse into products or material.
- Conservation of landfill space, less material that can potentially impact ground and surface waters.
- Vendors can now offer waste diversion techniques for other events – multiplying the impact of the CHPRC effort.
- Pigs were well-fed.
- The CHPRC Green Team and employees celebrated their success.

Landfill Gases

572 total pounds of food waste from the 2012 and 2013 picnics were diverted from landfills through donations to the pig farmer and composting at Barr-Tech in Sprague, Washington. This is significant since landfills are the second largest source of U.S. anthropogenic methane emissions [1]. Furthermore, the huge amounts of waste that are buried in landfill sites can mean that methane is produced for years after the site is closed, due to the waste slowly decaying under the ground [2].

Cost Savings

Since waste is by nature a sign of inefficiency, the reduction of waste usually reduces costs. Reduction of waste doesn't only apply to refuse generated but also production, packaging, and manufacturing waste. One example is the decision to use bulk foods instead of individually packaged items. Potato chips purchased in large bags and boxes are much cheaper than single-serving bags, water served from coolers into compostable paper cups is far cheaper than bottled water, etc.

Zero Waste promotes not only reuse and recycling, but also, and more importantly, promotes prevention and opportunities for efficiency. Reduced materials use, use of recycled materials, use of more benign materials, longer product lives, reparability, and ease of disassembly at end of life are all factors that feed the efficiency of a product's entire life cycle.

A Zero Waste strategy is a sound business tool that, when integrated into business processes, provides an easy to understand stretch goal that can lead to innovative ways to identify, prevent and reduce wastes of all kinds. It strongly supports sustainability by protecting the environment, reducing costs and producing additional jobs in the management and handling of wastes back into the industrial cycle. A Zero Waste strategy may be applied to businesses, communities, industrial sectors, schools and homes. [3].

CONCLUSIONS

The 2013 statistics tell a success story: if 2102 was a great effort, 2013 was extraordinary in the amount of waste diverted from landfills. The 2013 total for waste diversion was more than 98%.

The CHPRC All-Employee Family Picnic provided a fun day with family and co-workers. It also put sustainability into action and showed the community that a ZERO WASTE picnic can be accomplished by a group of employees dedicated to protecting our environment. CHPRC has shown that by adhering to its EMS principals, and with a creative and energetic team, that great things can be achieved while simultaneously having fun. The first CHPRC zero-waste effort set the bar high for subsequent events. The picnic won several awards, including the City of Richland, Green Living Award, Green Event of the Year.

REFERENCES

1. Environmental Protection Agency (EPA), "Overview of Greenhouse Gases." <http://epa.gov/climatechange/ghgemissions/gases/ch4.html>
2. Reay, Dave. "Sources of Methane – Landfill." GHG Online. <http://www.ghgonline.org/methanelandfill.htm>
3. Zero Waste Alliance, "The Case for Zero Waste." <http://www.zerowaste.org/case.htm>