

Across the Silos—The Emerging “Art” of Zero Waste Management

What waste professionals can do to turn waste into resources BY TIM FLANAGAN

On August 21, 2017, a solar eclipse was seen in many parts of the United States. To many witnessing this event, this would be a once-in-a-lifetime experience to see such a full eclipse of the sun in North America.

I happened to see this eclipse in San Diego, CA, while attending the 41st annual California Resource Recovery Conference and Trade Show (CRRRA). To be able to witness this event was truly awe-inspiring. While looking at the crowd gathered outside, sharing an amazing celestial event, I was struck by how an event occurring out in the

cosmos could mirror events taking place on Earth. What dawned on me, in particular, was how CRRRA and SWANA (Solid Waste Association of North America) were teaming up to present the first combined Zero Waste Training Certification class held in conjunction with the CRRRA conference. As someone who has been a member of CRRRA since 1982 and a member of SWANA since 2005, I was struck by just how unique an “alignment”—an

alignment of celestial significance in the recycling and solid waste industry—this type of training was for both organizations. The Zero Waste Training Certification class was several years in coming, subject to much hard work by dedicated individuals and with significant group efforts. Like an eclipse, it could have been obscured by clouds of disagreement, not seen for its potential by people who lacked vision and discounted by some who failed to see the significance of such collaboration, but this effort came about and was a great success.

Webster’s New College Dictionary defines an eclipse in a variety of ways. As a transitive verb, it is defined as follows: *to make seem less brilliant, famous, etc. by being even more so; overshadow; outshine; surpass*. To me, the “eclipse” that occurred inside the conference halls was the transition of what has previously been the routine integrated solid waste management discussions at these conferences—recycling, composting, disposal, etc.—to the emerging concept of more sustainable practices that have zero waste planning at its core, and highlighting the utilization of waste as a resource. The question I asked myself is: Have the traditional approaches of “silo”

waste management practices—where one solid waste discipline does not even recognize the other, the past attitudes of waste management practitioners not cooperating or even talking to one another—been finally “eclipsed”? The belief that landfills cannot salvage reusables? That collection programs can ignore food waste and organics diversion? That public education efforts should not address product stewardship? The concept of talking about waste as a resource not recognized? Have these previously held notions been finally retired? Has the old notion of everyone in their silos been finally put to bed?

Has zero waste planning and implementation finally found its “place in the sun”?

The concept of training the present and future leaders of the industry of the benefits of zero waste has been an idea of some zero waste advocates for quite some time. CRRRA partnered with SWANA in over a two-year effort to develop this course. CRRRA executive director Jenna Abbott, at her first CRRRA conference, said, “As a newcomer, not only to



CRRRA but to the industry, it’s exciting for me to see the collaborations and partnerships growing and the silos breaking apart. As we work closely with our colleagues, we often find that we are much more alike than we are different. The more we work together, the better our chances of achieving our shared mission of achieving zero waste.” She noted that she will be part of the next class in Zero Waste Certification to be held at SWANA headquarters in Silver Springs, MD, November 6–8, 2017. Abbott stated that one of their next goals in CRRRA “was to grow our relationship with SWANA and add instructors from the West Coast. We eventually hope to hold as many as four certification training sessions each year and will definitely hold one at our next conference—July 26–29th, 2018, in Oakland, CA.”

Developing the class itself was an intensive effort. CRRRA and SWANA staff, led by a cadre of volunteers and a great consulting team, KCI Consulting Inc., led to this first ever Zero Waste Certification class being held in San Diego. The course was held over three days with a test. Kessler Consulting, Inc. (KCI) developed the innovative Zero Waste Principles & Practices certification course



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for SWANA and CRRA. The course is a training tool for solid waste professionals, sustainability specialists, and policymakers who are working to move their communities toward meeting community-specific zero waste goals. The course modules span a variety of industry topics including public policy, collection options, processing technologies, organics management, program financing, contract management, and effective education and outreach strategies. The three-day, ten-module course is designed to assist communities in implementing innovative strategies and best practices as they work to reach their zero waste goals. The materials developed for the class, a ten-chapter and almost 200-page document, was a significant achievement in itself. Mitch Kessler, president of KCI, states that “this course was a natural fit for us because of our focus on resource conservation and sustainable management of waste.”

One of the two trainers for the class, Tracie Onstad Bills, Northern California Director of Sustainable Materials Management for SCS Engineers, a former board member of CRRA and current SWANA Gold Rush chapter Vice President, remarks that “previous CRRA Zero Waste training was held on a single day, and the difference in this new training class was that this course provided an intense background . . . from start to finish on Zero Waste practices and principles.” She also says that “Having a partnership with SWANA, allowing for a nationwide certification in Zero Waste, was an exciting concept.” And she adds, “As a former CRRA Board member during the development of this course, the chance to engage many more potential stakeholders was a real attraction for CRRA.” Bills also identifies the dedication and knowledge of the class attendees, noting that “perhaps 75% of the students had a background in

zero waste already, and this offered a unique chance for the attendees to learn from each other—and not just the instructors.” Bills notes that “given the broad comprehensive subject matter and the depth of the coursework, I was glad to team with Mike Tilley for ‘team-teaching’ this class. There was a lot of material and the class discussion was lively with so many experienced professionals in the class.”

SWANA trainer Mike Tilley co-taught the class with Tracie Onstad Bills. Mike thinks that the class is especially important now, considering recent developments in China and restrictions on the shipping of recyclables. “With the concern being raised about China’s ‘Nation Sword’ policy, the Zero Waste Certification course helped underscore the need to think about not only what comes ‘downstream,’ but to also focus on what is happening ‘upstream’ and ‘mid-stream.’” Tilley believes that the class helps prepare professionals to understand the basis for the upcoming shift in costs that consumers, businesses, and municipalities will need to incur to support zero waste practices. “We need everyone to understand that a substantial amount of outreach is going to be necessary to support costs for providing zero waste services. We need infrastructure and education—and lots of both.”

Sara Bixby, Deputy Executive Director for SWANA, was one of the driving forces behind the development and implementation of the Zero Waste Certification class. Sara speaks to SWANA’s commitment, noting that “Our [SWANA’s] Strategic Plan adopted two years ago stated that SWANA identified ‘waste as a resource’ as one of the central tenets of the organization. We recognized that this is a transitional period for the industry and we wanted to enhance what our members are doing and help people move forward on the path

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to zero waste.” CRRA and SWANA collaborated on the development of the Zero Waste Principles and Practices course.

Gary Liss, long-time recycling and zero waste advocate, former Executive Director of CRRA and currently vice president of Zero Waste International Alliance (ZWIA), was one of the class participants. While at CRRA, Liss helped develop the first “Zero Waste” conference for CRRA held in 1997 in Monterey. Liss states that “My expectation was to hope to develop an alternative to previous recycling training programs, to promote the concept, as my colleague Eric Lombardi once said, to have “zero waste or pretty darn close.” Liss believes that a benefit of this Zero Waste certification class was to “develop joint promotion and collaboration between SWANA, NRC, and state recycling associations to raise awareness around the concepts and principles of zero waste.” Liss points to the ZWIA Zero Waste Hierarchy of Highest and Best Use on its website as a guiding principle for him and his definitional base. He expresses concern that the course did not use the ZWIA definition for zero waste and that the coursework had a small section on waste to energy, which is antithetical to Zero Waste principles by ZWIA’s definition. “The ZWIA definition of Zero Waste is the one, peer-reviewed, internationally accepted definition of Zero Waste,” states Liss. The ZWIA website states in part: “. . . Zero Waste is a goal that is ethical, economical, efficient, and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use . . .”

Another class attendee was David Ramirez, P.E., SC, Senior Engineer for the Monterey Regional Waste Management District. Ramirez, a registered engineer in the state of California and SWANA MOLO certified, says in part, “An engineer in this age needs to be an expert in both linear and circular material management systems. Society’s linear disposal legacy lives beyond the delivery of the last load to a landfill. By their nature, landfills require post-closure

maintenance. Even with the move to zero waste, engineers will still need to be able to understand and design landfill systems to maintain public health and the environment. As a result, engineers will be required to understand how to manage existing disposal infrastructure and plan and develop Zero Waste assets. This course paints a picture of what a municipal zero waste system could look like and allows the engineer to ‘backcast’ that vision and implement designs that foster zero waste goals.”

As someone who has been in this profession over 35 years, I have witnessed the complete evolution—almost a revolution—of the solid waste industry, from a handful of curbside recycling collection programs in the late 1970s and early 1980s to the adoption of identifying “waste as a resource;” it is nothing more than an amazing evolution in a single generation. We were not always “wasteful” as a country or a culture. That was a learned behavior that happened for a variety of reasons. So now our efforts are focused on unlearning that behavior—and this collaborative effort between CRRA and SWANA, and the other organizations that support training on zero waste practices, are geared towards embracing the fundamental principles of zero waste. In other words, “To guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use.” At the end of the day, no matter what the definition, this is what matters. Mike Tilley perhaps summarizes this best: “Zero Waste is not just a course or a program; Zero Waste is a passion. You must believe in it.” And now, due to the efforts of CRRA and SWANA, and many, many, other organizations that support Zero Waste, it might be an opportunity to train the next generation of “believers” who will continue to break down those “silos of solid waste” and put all of us on the “Road to Zero Waste,” or pretty darn close. **MSW**

Tim Flanagan is the General Manager at the Monterey Regional Waste Management District.

“Magnetic Pull”

By Chris Ramsdell, Eriez Recycling Equipment Product Manager

Many material recovery facilities (MRFs) invest in a total metal recovery system to separate and sort metals. Municipalities utilize some of the most innovative solutions when it comes to separation of ferrous, nonferrous, and other valuable metals from the mixed waste stream.

Research and development teams from high-tech manufacturers—such as Eriez—are responsible for many recycling industry product breakthroughs that allow MRFs around the country to increase profits by improving metals recovery, thus reducing landfill costs.

Suspended electromagnets (SEs), drum magnets, and eddy current separators are employed in various ways in this particular environment. Suspended magnets, drum magnets, and magnetic pulleys are used when steel and other ferrous metals need to be recovered.

Recovery methods also include electromagnetic feeders to help meter plastic regrind and heavy duty feeders to spread and singulate materials to sorters. MRFs commonly install this equipment with other OEM systems.

A typical MRF utilizes a drum feeder to feed material into the system. These facilities use a series of disc screeners to separate newspaper, cardboard, and other waste from the remaining materials.

A magnet is suspended either cross-belt (perpendicular to the product flow) or inline (parallel) above the product flow. These magnets are designed to constantly pick out and remove large chunks of metal from the conveyor belt.

Smaller-sized metal is sometimes dropped onto another conveyor where the material comes into contact with a magnetic pulley, sometimes called a permanent magnet axial interpole (AIP) pulley. These pulleys transform a belt conveyor into a powerful self-cleaning magnetic separator.

Also coming into play for high volume ferrous separation are heavy-duty magnetic drum separators (scrap drums). These powerful magnetic drums feature a non-magnetic exterior shell that is driven around a fixed magnetic center. Ferrous metals are drawn out of the waste stream by the powerful magnetic center and held against the revolving shell. The metal is released when it reaches a discharge point beyond the magnetic field.

In spite of the improvement in recovery, MRF operators still know intuitively that they continue to miss metal as they watch potential profits go to the landfill. Some waste recycling operations install the Metal Loss Monitor (MLM) to help confirm those losses. The MLM is typically positioned on the final waste stream in these facilities.

The MLM continually scans the residue stream for metal that has escaped the process and is headed for landfill disposal. The MLM takes the guesswork out of metal recovery, giving users the ability to observe the performance of their systems for variations over time. With this technology in place, maintenance issues and adjustment requirements are quickly spotted when losses spike. The data gathered also offers beneficial insight users require to properly evaluate whether additional or different separators should be used to reduce metal losses.