

Dealing with Contamination in Recycling

The challenge to address contamination is global, but there are steps to minimize it at the community level. Creativity and innovation can help meet the challenge and ultimately celebrate success.

■ By Tracie Onstad Bills

For many years, source separation was the primary method for recycling. However, technology has changed how recyclables are collected and processed. China, the largest importer of materials for recycling, now strictly enforces regulations on importing contaminated recycling materials into the country. China's Operation Green Fence puts restrictions on what material China will accept, rejecting materials that don't meet higher standards of cleanliness; that means rejected materials get buried in a landfill instead of being recycled.

Regardless of the type of recycling program, the biggest challenge here at home is minimizing contaminated recycling material. Communities are struggling to meet diversion goals and provide materials to local recyclers that are free of common contaminants, such as liquids left in containers or materials that are not recyclable.

Educating the community about proper recycling methods can be very time-consuming, however necessary to achieve high diversion with

clean marketable material. It can be compared to painting the Golden Gate Bridge: once you finish painting you have to start all over again, a continual process. The same holds true for educating the community on how to properly recycle. It is important for municipalities and recycling haulers to take charge of outreach, and think innovatively on how to attain information and maintain a successful recycling program. While working with communities over the last few years, there are a number of strategies that have provided successful results addressing contamination issues and can be seen in the following article.

Recycling Assessments

Conduct a visual and physical characterization study to identify contamination levels using one of the following two methods for the evaluation:

Visual characterizations of commercial route loads. Images courtesy of SCS Engineers.





Left and Middle: Commercial technical assistance to help set up proper recycling.
Right: Contamination in recycling.

1. *Recycling Routes:* Material from front, side and rear-load trucks are assessed to determine which routes and days of the week contain the largest volume of contamination. This information is used to target geographic areas for implementation of behavior change programs.

2. *Recycling Containers:* Material from compactor, roll-off, front-load containers or carts are assessed to identify which customers have severe contamination. This information is used to target customers who need additional assistance to clean up their recycling.

The type of characterization that is performed will depend on what you want to confirm. For example, if you want to estimate the volume of contamination on a specific route, a visual characterization can be performed. This method will assess an entire load to help identify what portions of the route are more contaminated than others. This approach was used for a project in California and included an assessment of the entire route load, identifying the percentage of contamination that was present. The load was then visually split into thirds to analyze contamination levels in the first, second and third of the load. When

the recycling drivers follow their route list, assessments can determine which customers are in each third of the load. If one section is more contaminated than another, targeting those customers would be appropriate and helpful in cleaning up the material.

To understand what the contamination consists of, a physical characterization would be more appropriate. This will allow for samples to be randomly selected from portions of the load sorted into specific material categories in order to identify what types of contaminants are in the recycling. Once materials are identified, this information can be used to update outreach materials and target businesses for recycling technical assistance.

Recycling Technical Assistance

Meet with businesses that have high contamination in their recycling bin and perform a walk-through of their facility to collect baseline waste assessment and material collection infrastructure information. All of the information identified during this process can then be used to

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provide customized recycling and composting recommendations, and implementation support such as employee training sessions, providing signage and collateral, referrals and multi-lingual outreach services. This is a critical step in analyzing and helping the business know what is acceptable, not acceptable and the appropriate actions to correct contamination.

Perform an analysis of processes for “Front-of-House” (i.e., where customers interact with business) and “Back-of-House” (i.e., managed fully by business), including identifying location and number of recycling containers, process used for managing materials, understanding the level of support management has of its employees recycling and how much control is given to contractors working onsite. For example, if a janitorial company is hired to manage moving the waste and recycling, providing a recycling training for workers and adding specific recycling requirements to the contract is important. The more tools, training, recommendations and support provided will assist heavily with cleaning up recycling and alleviating contamination.

When performing a waste assessment, it should include a visual characterization to show how much of each material type is in the containers. This is an easy way to assess what material should be placed in a different container (i.e., organic/recycling) or what is considered trash. As an alternative to materials identified as trash, more sustainable or recyclable products can be purchased. What we purchase is disposed of and looking upstream for changes is an important step to cleaning up contamination.

Review and Analysis of Community Recycling Programs


Review and analyze recycling programs. An environmental consultant can provide recommendations and assessments on how a recycling program can be enhanced to reduce the amount of contaminated materials. Services typically include everything from examining outreach materials to the flow of the recycling from generation to transport to processing. This assessment can identify challenges, as well as highlight programmatic changes, which can affect outcomes. For example, communities that do not use pictures for their outreach, or do not have explicit details on what is expected of residents or businesses, will receive a higher level of contamination in their recycling. Similarly, if certain materials are considered “acceptable” in the recycling container, however are not marketable by the recycler, they will be considered contaminants. Take a magnifying glass to your program and clearly review all of its aspects to make sure you have a well thought out program from start to finish.

Planning and Implementation of Behavior Change Programs

There is value in providing comprehensive programs and explicit outreach materials for increasing the probability of cleaner recycling. Behavior change programs focus on planning and implementing programs that identify key triggers to encourage action in the community. These programs help communicate the importance and value of specific activities to the community and cross any age and cultural barriers.


The challenge to address contamination is global, but there are steps to minimize it at the community level. Creativity and innovation can help meet the challenge and ultimately celebrate success. Sharing tips on what works can help to shift recycling to a cleaner and more marketable product. | **WA**

Tracie Onstad Bills is the Northern California Director of Sustainable Materials Management for SCS Engineers (Long Beach, CA). She has more than 20 years of materials management experience, including working for a hauler, a county government, a non-profit and more than 10 years with materials management consulting firms. She has provided zero waste strategies and technical expertise, which includes commercial sector material flow assessments, green events project management, climate inventory compilation and submittal, construction and demolition (C&D) research, visual and physical waste characterizations, analysis and recommendations on innovative programs to increase diversion, and recycling and waste management technical support to government agencies and businesses throughout Northern California. Tracie specializes in managing technical and outreach projects, conducting research and analysis, evaluating recycling outreach programs for municipalities, businesses, and haulers throughout the Bay Area. As an expert in the regulatory environment affecting management decision-making and a strong believer in transparency, she takes pride in her ability to engage stakeholders in meaningful action-oriented ways to drive higher levels of customer service. She is a CRRA Board member and belongs to the SWANA Gold Rush Chapter, National Recycling Coalition and the Northern California Recycling Association. Tracie can be reached at (925) 426-0279 or via e-mail at tbills@scsengineers.com.



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