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Subject: Tour of Kimble MRF

Dear Task Force members,

On Thursday 6/13/19 eight of us visited the Kimble Companies' Materials Recovery Facility in Twinsburg. It was fascinating and eye-opening, and helped me understand the central role that a MRF plays in the chain of recycling today. Since several other members could not attend, I've taken the liberty of sharing my observations and thoughts. If anyone on the tour recollects things differently or drew different conclusions, I hope you will respond as you see fit, and we can discuss at our next meeting.

Attending were John Blackwell, Susan Clement, Collette Clinkscale, Jordan Davis, Susan Efroymsen, Joe Kickel, Cathi Lehn and Carin Miller. Mr. Don Johnson of Kimble briefed us in advance, then took us through the facility. You will remember that Kimble is the company to which we entrust our curbside-collected recyclables. It is at the Materials Recovery Facility that our recyclables are received and sorted.

THE MRF

The MRF is essentially a humongous sorting factory, with high-speed conveyor belts moving up, down, across, around and through the whole place. Materials are sorted both manually by workers, and mechanically by machines, at different stages of the process. The process is basically this:

When the commingled ("single-stream") material arrives at the plant it is dumped onto the factory floor in one huge pile. The mixed material looks pretty much like trash at this point - it's hard to distinguish what is what, and it's a mess. This gets scooped up by a giant front-loader and dumped into a big hopper. The first sorting stage is a set of mechanical cams or discs that forces everything uphill and immediately crushes all of the glass. The glass falls through the machinery below, and all paper ("fiber") products fly to the top. They each go off on their own journey while the rest is leveled out into a single layer on a flat conveyor belt to be pre-sorted by hand. Workers prepare the material by removing items that don't belong at each stage (plastic bags, coat hangers, clothing, you name it). Magnets pull out all of the steel cans and other ferrous metals. Another machine uses a special reverse-magnetic eddy-current to flip aluminum cans up and over onto their own conveyor belt. Then... the plastics. A single layer of plastic items is run under an infrared light with cameras that can detect the different types of plastic. Dozens of little air nozzles can respond with amazing accuracy and jet each item into its proper place as it zips by. #1 plastic (water and soda bottles), and #2 (white milk cartons and other colored bottles and containers), are separated here. #3-7 are collectively dropped into their own, commingled purgatory (more on that later). This all happens at super high speed and is a bit dizzying. The whole operation is

monitored by three guys in a glass-walled booth who can control the speed of the belts according to changing conditions or emergencies.

Fiber gets divided into corrugated and non-corrugated categories. Once everything is separated and reasonably uncontaminated, each different material is compressed and wired into huge bales - roughly six-foot cubes. Each bale of fiber, metal or plastic weighs around 1-2 tons. Glass isn't baled, it's crushed like gravel into two sizes of particulate: smaller than 7/8" and larger than 7/8". Then it will be sold as filler for road construction and other purposes. Glass is generally NOT recycled into more bottles or consumer products.

Remember that MRFs don't actually recycle anything, they are just one (major) step in the chain. MRFs simply sort the materials they receive so they can be sold in the open market and actually be converted into new items. Mr. Johnson indicated that current markets for aluminum and paper are fairly stable, glass is declining, and the value of recycled plastics has taken a nose-dive. Companies like Kimble may retain certain materials for a time until market prices are more favorable, as long as they have somewhere to store the bales. Those #3-7 plastics that were separated at the MRF? Worthless. But Kimble is keeping a certain amount of them on the chance that they might have some value someday. Most likely they will end up in the landfill, however.

Because of unpredictable markets, Kimble and other MRF operators are beginning to structure their contracts to account for variabilities in the market value of recycleables. I think we can expect to see clauses accounting for adjustable rates paid, (or charged), in any bids we receive from MRF operators.

Similarly, it's possible we'll see surcharges or fees if a certain percentage of contaminants is found in the recycling stream. Mr. Johnson said it would be feasible to conduct an annual "audit" of Cleveland Heights' recycling stream and adjust any fees accordingly. There wasn't much discussion about in-home recycling habits, (lids off or on? what about foil pie-pans? etc.), but it became clear that recycling batches are of higher value when they don't contain the wrong items or materials.

Mr. Johnson gave us a somewhat detailed overview of the history of garbage dumping and recycling from the 1970s until today. He referred to H.B 592, the 1988 law which revamped Ohio's waste management practices. (More about H.B 592 here: https://epa.ohio.gov/Portals/34/document/guidance/gd_196.pdf). He also outlined the role of overseas countries accepting, or rejecting, our waste and recyclables. Suffice it to say that today, with China no longer a factor, domestic recycling, (and landfilling), is on something of an upsurge. But the biggest takeaway is that the waste market is made up of multiple interrelated and fluctuating factors, which we will have to accept, account for and accommodate as we upgrade our waste and recycling practices.

Another takeaway for recycling advocates is this: as long as we have so called single-stream, or commingled collection, the MRF is king. If an item can't be sorted by a MRF, it can't be recycled on a municipal-level scale.

Although we weren't permitted to take pictures inside the MRF itself, here is a straightforward 6-minute video that actually shows how a MRF works (I think this is from Vermont):

<https://www.youtube.com/watch?v=c2Tr-U0nALM>

This one, from London Ontario, is also pretty good (11 minutes):

<https://www.youtube.com/watch?v=c2Tr-U0nALM>

ABOUT KIMBLE:

Kimble is a privately-owned, family-run Ohio company, much smaller than the national giants like BFI, WMI and Republic. What started as a simple landfill operation in Dover, Ohio grew into a regional hauler of waste and recyclables starting in 1993. There are two, separate Kimble companies, (although it appears that both may be operating from the Twinsburg site). "Kimble Disposal and Recycling" basically collects, hauls and dumps solid waste. They have 300 trucks, and their territory is centered on I-77 from Marietta to Cleveland. "Kimble Companies" is a second company which operates transfer facilities, like this MRF, and sells recyclates. There are four other Kimble sites in Ohio, including their landfill in Dover. The Twinsbug MRF has 27 employees and operates pretty much around the clock, in two shifts.

WHAT ELSE:

We talked a bit about curbside carts, the two-wheeled, lidded receptacles that are now standard for automated curbside collection of both garbage and recyclables. We saw both sizes: 92-gallon and 64-gallon; one was bright green, the other grey. We discussed some of the usual questions, such as whether they are convenient to move and manage, if they should be lined, etc. I think Mr. Johnson said they cost around \$49-54 each, but maybe somebody else remembers that number better than I. But under the Kimble model residents don't own the carts; they remain the property of Kimble, and each is assigned to a specific address. We talked about some of the advantages and challenges of carts vs. bags, including the fact that people sometimes put the wrong items in the wrong carts, and put foreign objects like air conditioners and toys in with their recycling. Some form of "tagging," that is, notifying or penalizing residents for improperly filled carts is becoming common; this practice has its own upsides and downsides. The Kimble carts are manufactured regionally, (in Pennsylvania and/or Ohio), and are partially made from recycled plastic.

I'll leave you with this: back inside the MRF, we noticed that alongside the two-story-tall storage silos labelled for "ALUM" (aluminum) and "PET" (#1 plastic), there is an identical, and equally massive, silo labelled "CAT FOOD CANS."?!? Was that a joke? It turns out that all cat food cans have a non-metallic liner laminated on the inside, which ruins the material for recycling. But, because so many of them come in, and they are easily identified, and have a consistent form factor, and Mr. Kimble hates to see anything wasted, they found a way to separate them out and save them. And apparently they've now identified a company that can decouple the laminate and recycle the metal.

Although photos inside the plant were forbidden, I do wish we had a group photo - everyone looked so professional in their hardhats and safety vests!

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