

Chemical Waste: Where does it go? – Part 2

As described in the last newsletter, waste generated by the chemistry department has the possibility of one of two fates: the Franklin County Sanitary Landfill in Grove City (Part 2) or the Clean Harbours Incineration Facility in El Dorado, Arkansas (Part 3).

Non-hazardous materials such as regular trash, clean broken glass boxes or uncontaminated gloves and paper towels go through Franklin County's waste stream. Take I-71 south towards Cincinnati and you'll pass the facility on the right. Sanitary landfills are highly regulated and maintained. You won't find a mile high pile of garbage here. It's actually a hole. The bottom layer of a modern landfill is lined with plastic, dense clay, soil and gravel to prevent leakage into the surrounding environment. Waste will produce some liquid as it decomposes and rain/snow may carry these contaminants to the bottom of the hole. A drainage system on top of the liner collects this leachate and funnels it to a waste water treatment facility for further processing. The composition of the leachate is monitored for hazardous materials in order to ensure safety of the landfill.

After a hole is completely filled with compacted trash, the landfill is "capped" with liners and at least 2 feet of soil and vegetation and then monitored for at least 30 years. In addition to liquid leachate, over time the decomposing waste will produce gas in the form of methane and carbon dioxide. The capture of methane byproduct is attractive from an environmental and economical standpoint. As early as 2005, as part of Phase I of the Solid Waste Authority of Central Ohio (SWACO) Landfill Gas Project, SWACO made efforts to convert methane to a liquid biofuel source, but they had a hard time finding a buyer. In 2014, Franklin County partnered with SWACO and Aria Energy, a renewable energy company and largest producer of Renewable Natural Gas (RNG) in North America to refine the landfill gas to pipeline standards in order to make money off of the methane byproduct. A \$22.5 million facility was built next to the Grove City landfill. Aria processes as much as 27,000 tons of methane annually (enough to power 17,000 homes). Aria transports the RNG to Columbia Gas' delivery points and performs checks to ensure RNG quality specifications. So four entities, Franklin County Sanitary Landfill, SWACO, Aria and Columbia are working together on this methane capture project in order to reduce landfill emissions as well as bring in revenue.

Highly Experienced Lab Safety Officers

Let's recognize the following LSO's who have dedicated numerous years towards improving safety culture within their research group and the department!

4+ years

- ❖ Minhee Kang (J.Wu)
- ❖ Avinash Jaiganesh (Sotomayor)
- ❖ Yutichai Mueangnorn (Baker)

3+ years

- ❖ Sweta Shrestha (Dutta)
- ❖ Jeremy Lear (Nagib)
- ❖ Lauren Loftus (Turro)
- ❖ Mengxuan Jia (Wysocki)

Safety in Numbers

Compliance for Feb 2019



Eyewear



Lab coats

Upcoming Event

JST will host a **Dow Chemical** EHS Representative for Industry Day (May 6-7). All students are invited to join us for:

- Academia/Industry transition seminar
- Meet and Greet Session
- Small group meetings

Stay tuned for more details closer to the date!

