The Aurora Report

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IN THIS ISSUE

Hazardous Waste Cradle to Grave – Do You Know Where Your Waste Is Right Now?

The Resource Conservation and Recovery Act (RCRA) of 1976 gave the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from "cradle-to-grave." It also established "cradle to grave" **liability** for hazardous waste **generators** (users of **hazardous materials** who generate **hazardous waste**). What does that mean for you? All school districts generate some form of hazardous waste, be it used oil in the maintenance and/or transportation facilities, old paint/art supplies, cleaning solvents, or science lab waste. Other wastes we have found at schools are pesticides, herbicides, depleted batteries, glues and adhesives, medical/pathological waste, lubricants, paints, varnishes, stains, and laboratory chemicals. Many districts are Small Quantity Generators (SQGs), some are Large Quantity Generators (LQGs), and some are Conditionally Exempt Small Quantity Generators (CESQGs) (in other states, known as Very Small Quantity Generators or VSQGs). Hazardous waste generators must track waste from the moment it enters the site as a **hazardous material** to the eventual **treatment** or **disposal** of that material as a **hazardous waste**—see text box below.

In addition to the federal RCRA hazardous waste rules, most states are authorized to operate their own hazardous waste programs and may have more stringent rules than those of the federal hazardous waste management program. As you probably know, **California** is one of those states, and it imposes *more* stringent regulations for hazardous waste and identifies California-specific hazardous wastes. Since neither the federal or state governments have the bandwidth to visit individual hazardous waste generators on a regular basis, the **Certified Unified Program Agencies (CUPA)** were formed to do the boots-on-the-ground monitoring and enforcement. These are mostly county authorities, and are the ones inspecting your facilities that deal with hazardous wastes.

So in California, where there are more stringent rules and penalties associated with hazardous waste generation, transportation, and disposal, it is vital that you understand your district's liability for "cradle to grave" hazardous wastes. Basically, **your liability doesn't end or transfer** to someone else when the waste leaves your facility. Not only are you liable if anything goes wrong during the waste's transportation and disposal, but **you also remain liable when the waste has been land-disposed**. This means, if there are future problems at a landfill, you can be held liable for cleanup and remediation as a generator of the waste. Wastes that are incinerated or recycled, on the other hand, end your generator liability.

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Hazardous Materials
vs.
Hazardous Wastes

Hazardous Materials* are any chemical that is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, a hazard not otherwise classified, or is included in the List of Hazardous Substances prepared by the Director.

Hazardous Wastes* are discarded or spent materials with one or more of the following characteristics: flammability, toxicity, corrosivity, reactivity, radioactivity, listed, and dangerous to health and/or environment.

* OSHA definition 29 CFR 1910.1200(c)
**RCRA definition 40 CFR Parts 239-282

Hazardous Waste Cradle to Grave – Continued

Besides vetting your hazardous waste handlers and vendors, what else can your district do to reduce its potential liability for hazardous waste handling? **Recycling** hazardous waste has a variety of benefits, including reducing the consumption of raw materials and the volume of waste materials that must be treated and disposed, as well as ending your generator liability if done legitimately. However, improper storage of waste materials might cause spills, leaks, fires, and contamination of soil and drinking water.

Recently two recycling firms in Southern California received steep penalties by the California Department of Toxic Substances Control (DTSC) for violations of hazardous waste laws. **Phibro-Tech Inc.,** a chemical manufacturing and hazardous waste recycling facility in Santa Fe Springs, was assessed $495,000 for illegal storage and treatment of hazardous waste, including cyanide and other acidic and alkaline waste, keeping inaccurate records, and using unauthorized equipment. **Quemetco Inc.,** a battery recycler in the City of Industry but Dallas, Texas-owned, was assessed 29 violations including a non-functioning leak-detection system for hazardous lead waste, improper storage, and failure to construct an adequate groundwater monitoring system. The penalties have not yet been publicized, but may be $25,000 per day going back to October 31, 2018.

Therefore, it is very important you can trust that the firms handling your hazardous waste are reputable, that they have sufficient insurance to handle mishaps, and that the ultimate treatment, recycling, or disposal is done in a legal and responsible manner. The next article in this newsletter gives some ideas for reducing your hazardous waste costs without increasing your liability.

From Mixing to Minimization: Waste Solutions That Work for Your District

Mixing, consolidating, combining, comingling of hazardous wastes, and consolidated manifesting—are there differences? Is there an advantage? Let's define terms first.

Mixing – The federal "mixture rule" provides that any mixture of a listed hazardous waste and a solid [nonhazardous] waste is itself a RCRA hazardous waste. Because of this rule, the term "mixing" is avoided when referring to combining or commingling wastes.

Consolidating – This is combining different hazardous wastestreams together into an appropriate storage container to facilitate storage and transportation. In California, in order to consolidate your hazardous waste, you must have a ***remote site***, ***consolidation site***, and ***transporter***. The ***remote site*** is where the generator initially collects hazardous waste. Staff, other than security, cannot be routinely located at or next to a remote site. Generator staff can visit the remote site to perform inspections or maintenance activities periodically or on a random basis, however, as long as they are not considered to be routinely located at the remote site. The ***consolidation site*** is where waste initially collected at a ***remote site*** is transported, and where accumulation occurs. The ***transporter*** is a company that is licensed to transport hazardous waste from the ***remote site*** to the ***consolidation site***.

Combining or **Commingling** – These terms are used interchangeably with **consolidating**.

Consolidated Manifesting – Formerly known as modified manifesting or ***milkrunning***, this allows certain registered hazardous waste transporters to combine specified wastes from multiple eligible generators **on a single manifest**, rather than using a separate manifest from each generator. The generators using the consolidated manifesting procedure are exempt from filling out a hazardous waste manifest. The consolidated transporter completes both the generator and the transporter section of the manifest. *Consolidated manifesting does **not** authorize a hazardous waste transporter to commingle different types of hazardous wastes into the same tank or container.* The consolidation is of the paperwork (manifests) only.

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From Mixing to Minimization: Waste Solutions That Work for Your District - Continued

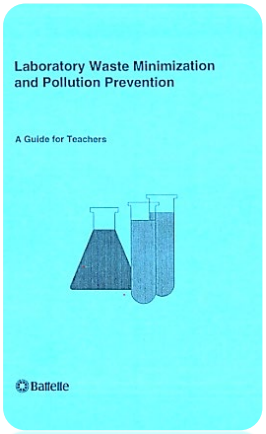
The way many schools handle hazardous waste now is to collect it by class or department in its own containers, which are then packed by a third party, usually, into larger plastic or metal drums ("lab packs") for transport and disposal. Because there can be voids in the drums due to the different sizes of containers, some of the space may be "wasted." **Consolidation** attempts to eliminate that empty space for fewer drums, achieving some cost savings.

The promise of consolidation, however, may not be available for many school districts. School buildings cannot be called remote sites. A licensed transporter must be contracted, and then the substances to be combined must be safely mixed by trained technicians, certified in handling hazardous materials and waste. Determination must be made on site of which chemicals and wastes can be consolidated safely and which cannot and must be packed separately. Mistakes in combining incompatible chemicals can be costly, and even fatal.

Besides the risks involved with commingling wastes, which, if not compatible, will cause hazardous fumes, fires, or explosions, are added risks that hazardous waste will be spilled in the process of commingling, or that the containers will not be resealed and labeled properly. According to the EPA, when generators sign a manifest, they are certifying that the waste is properly labeled and packaged. If that waste is repackaged, the generator certification is broken. However, *the generator still remains liable*.

So if consolidating hazardous waste is not a good solution for your district, what are other ways to cut the costs associated with handling your hazardous wastes? **Waste Minimization** is a way that many academic institutions are cutting these costs at the source. What is Waste Minimization?

Waste Minimization refers to the use of source reduction and/or environmentally sound recycling methods prior to energy recovery, treatment, or disposal of wastes. **Source reduction**, commonly known as **pollution prevention (P2)**, reduces or eliminates the generation of waste at the source and refers to any practice that reduces the use of hazardous materials in work and academic processes. Some examples of waste minimization for school districts include:



- Retiring equipment such as mercury-containing devices (switches, thermostats, and thermometers);
- Using less toxic chemicals in art classes, shops (both class and maintenance), and landscaping (pesticides and herbicides);
- Reducing the quantity of lab chemicals purchased, which in turn reduces the amount of money that is tied up in chemical inventory; and
- Scaling down experiments, substituting less hazardous materials, and using alternatives to wet chemistry in science labs.

A guidance document, *Laboratory Waste Minimization and Pollution Prevention—A Guide for Teachers,* has much more information on waste minimization, including checklists, and points out that the benefits include that it is ***environmentally responsible***. "By reducing wastes at the source, you are taking the most effective step towards eliminating wastes that would otherwise be released to the environment. Schools are highly visible members of the community, and waste minimization provides the opportunity to set an example for the community, even if a school generates relatively little waste." Waste minimization also ***aids laboratory safety*** by reducing the quantity of hazardous chemicals students and teachers handle, thereby reducing the hazard. And best of all, ***waste minimization saves school districts money***. Reducing chemical use and toxicity of products also reduces waste disposal costs.

Waste minimization, along with reuse and recycling, which many schools already do, can significantly reduce the costs of hazardous waste disposal, without the potential liabilities associated with consolidating wastes improperly. If you would like more information on waste minimization, source reduction, and pollution prevention for your school district, Aurora ESI can help.

Notes from the Inspector…

In this issue, Shanah Kirkwood, Senior Environmental Specialist and Health & Safety Inspector, gives her observations concerning chemical incompatibility issues, and what teachers and maintenance personnel can do to prevent them.

Chemical Compatibility – What They're Doing When You're Not Around…

Science teachers and other school personnel such as maintenance workers receive regular training on hazardous chemicals and wastes. Nevertheless, Aurora ESI inspectors often find incompatible chemicals stored together, sometimes due to chemicals being stored **alphabetically** rather than **by compatibility**, and sometimes inadvertently. We believe that often, "household" hazardous chemicals such as ammonia and bleach are thought to be rather innocuous, since they are sold over the counter and most of us have them in our homes. Even scientifically-trained workers can forget the inherent dangers of chemicals and become complacent with more "everyday" substances.

Bleach and **ammonia** are two of these common products, which people use for cleaning and often store together under kitchen and bathroom sinks, in a bin in a laundry room, or out in a garage. Bleach and ammonia, however, react together to form toxic **chloramine vapors**, which have the potential to form **hydrazine**, an explosive chemical. In addition to respiratory irritation, hydrazine can also cause edema, headache, nausea, and seizures.

Despite these dire effects, Aurora ESI frequently discovers bleach and ammonia stored next to each other when we are conducting Health & Safety Inspections at schools (see photo). We separate these products and write up the finding, but inspections are done only once per year. Teachers and other school employees must be the ones to recognize which chemicals should not be stored together.

Because bleach and ammonia have high pH values, over-the-counter bleach or **sodium hypochlorite** solutions are often stored in base cabinets with ammonia and ammonium hydroxide. Science teachers who know that bleach cannot be stored with ammonia have tried to solve this issue by storing bleach in their acid cabinets. There is just one problem…bleach reacts with acids to generate another deadly compound, **chlorine gas**. This can happen with plain old vinegar (acetic acid), an over-the-counter acid. If this reaction occurs in an unventilated or poorly-ventilated area, an employee could quickly be overwhelmed by chlorine gas and lose consciousness or even die (chlorine gas has been used as a chemical weapon).

Chemical incompatibility relates to spill cleanup as well. Generally, when **corrosives** are spilled, one would **neutralize** the corrosive to make it safe for cleaning up. Often, **vinegar** is used for base spills and **baking soda** is used for acid spills. However, as mentioned before, **using vinegar to neutralize bleach would liberate chlorine gas**. Therefore, ***never neutralize bleach or sodium hypochlorite spills***.

Keep your colleagues, your students, your family, and yourself safe. Do not store chemicals alphabetically, store bleach by itself, and *never* mix cleaning agents. In a future issue, I will cover some other chemical compatibility issues. – **Shanah Kirkwood, Senior Environmental Specialist**

QUESTION OF THE QUARTER

Win a $25 Starbucks gift certificate if you can answer the Question, the answer of which is somewhere in the pages of this *Aurora Report*:

"In California, in order to *consolidate* your hazardous waste, what 3 things do you need?"

Be the first to send the answer to info@auroraesi.com – if multiple right answers come in same time period, all will be entered into a drawing for the card. Winners and nonwinners notified of answer and results.

Coming next… The ***4Q2019 Aurora Report*** will focus on Stormwater Pollution Prevention.

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