

REGULATION OF LABORATORY WASTE

The American Chemical Society (ACS) is committed to the health and safety of both humans and the environment in all operations of the chemical enterprise. Regulations that support the protection of the environment, while allowing the continuing development of science and technology, benefits all society.

However, significant environmental regulatory burdens are placed on academic, commercial, and government laboratories when regulations designed to address large-scale industrial operations are applied to these settings. Applying these regulatory requirements to the laboratory environment can unintentionally create significant operational challenges in managing the environmental impact of laboratories. For example, research, development, instructional, and service laboratories generate a broad range of small quantities of hazardous wastes, but are forced to individually manage each type of waste with the same practices applied to large amounts of relatively few wastes. Applying an industrial regulatory scheme to laboratories places unintended and ineffective burdens on these facilities.

Additionally, when creating the proposed rules for an alternative waste management for academic laboratories (Subpart K), EPA's data indicated only 9% of the waste at the institution was from laboratory operations. This provided EPA's justification for dual management methods at Subpart K eligible facilities. In the preamble to the final publication of the rule, EPA noted errors in the methodology used to estimate the percentage of laboratory waste at college and university large quantity generators, revising it to 73%. For teaching hospitals and non-profit research institutions, it was even higher at 81% and 92%, respectively. EPA's revised calculations counter the justification to require dual management methods at Subpart K eligible facilities.

To address these challenges, the ACS makes the following recommendations:

Consistent Interpretation of Regulations by Local, State, and Federal Agencies

The U.S. regulatory system involves multiple federal, state, and local regulators. This often leads to inconsistent interpretations and makes development of "best practices" for waste management difficult. State regulations must be at least as stringent as related federal regulations, and local regulations at least as stringent as related federal and state regulations. For consistency, when a local or state regulation is identical to the federal, that regulation should be interpreted and enforced in an identical manner. While this is an ongoing challenge due to the many stakeholders involved, we believe consistent communication among these stakeholders is essential to achieving the regulatory goals for laboratory waste management.

- *ACS encourages consistent interpretation and enforcement of laboratory waste regulations by agencies at all levels, local, state, and federal.*

Point of Generation and Waste Determination

The American Chemical Society (ACS) Board of Directors Committee on Public Affairs and Public Relations adopted this statement on behalf of the Society at the recommendation of the Committee on Chemical Safety. ACS is a non-profit scientific and educational organization, chartered by Congress, with more than 157,000 chemical scientists and engineers as members. The world's largest scientific society, ACS advances the chemical enterprise, increases public awareness of chemistry, and brings its expertise to state and national matters.

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Laboratories usually generate wastes in small amounts over time as chemical work proceeds. This can lead to confusion in applying the concept of “point of generation” to a specific laboratory chemical process and ambiguity as to where and when the hazardous waste determination should be made. At the same time, laboratories produce many novel chemicals that, while possessing hazardous properties, are not regulated by current federal or state regulations. For these reasons, institutional environmental health and safety professionals develop appropriate waste procedures to protect human health and the environment.

- *ACS recommends that EPA allow the option of individuals labeling unwanted laboratory chemicals with contents and hazards in a manner that allows trained professionals, such as environmental health and safety staff or hazardous waste contractors, to make the full waste determination in a waste accumulation area before it is packaged for shipment.*

Implementation and Expansion of the Environmental Protection Agency’s (EPA) Subpart K Regulations for Laboratories

The Subpart K regulations for academic laboratories represent a good, first step towards needed regulatory relief for laboratory facilities. However, until states with authority to regulate hazardous waste activities adopt these rules, they will not be accessible to most laboratories. State environmental agencies need to be aware of the special issues laboratories face in complying with the hazardous waste regulations. These rules should also be an option for commercial and industrial laboratory facilities that face the same unique challenges as academic facilities regarding laboratory waste generation. More academic institutions would adopt Subpart K if the EPA removed the time limit on accumulation of waste in the lab and allowed the rule to apply to the entire institution. The recently expanded twelve-month limit on lab waste accumulation is an onerous requirement that can significantly increase handling of waste without any apparent benefit to either regulators or the regulated community. Subpart K already includes a requirement for procedures for managing time-sensitive chemicals and chemical waste.

Maintaining two separate programs for managing laboratory and non-laboratory wastes in the same institution creates a system that is challenging and inconsistent. Allowing academic institutions to manage their research laboratory, teaching laboratory, art studio, campus dining, machine shops, art and library conservation laboratories, maintenance shops, housekeeping, clinic, office, power distributions and other chemical wastes in the same manner would not create additional environmental risk, but would eliminate the confusion of having separate waste management protocols for different parts of the institution. As stated earlier in this document, the EPA’s revised calculations for the percentage of waste from laboratory operations no longer support their justification for a dual management system.

- *ACS recommends that all states adopt Subpart K.*
- *ACS recommends that non-academic laboratory facilities where the preponderance of waste is from laboratories be eligible for rules equivalent to Subpart K.*
- *ACS recommends elimination of the time limit on removal of unwanted material from the laboratory in favor of the traditional volume limits established in RCRA.*
- *ACS recommends that facilities currently eligible for Subpart K be allowed to apply the rules to the entire institution.*

Land Disposal Restriction Forms

All generators of hazardous waste are required to notify waste disposal facilities of allowable disposal technologies for each individual waste generated. This requirement dates to 1984 when EPA initiated a three-phase time period to eliminate the land disposal of hazardous waste. The requirement for land disposal restriction notification is now obsolete and duplicative because the last exemptions allowing land disposal of hazardous wastes ended in 1999. Treatment, storage, and disposal (TSD) facilities are well prepared to handle all of their permitted wastes and understand the requirements for how they handle the wastes. They also are aware of the relevant health and safety issues for these wastes, as required on other forms. The significant cost burden of completing, submitting and filing this unnecessary form is almost exclusively placed on laboratories, since the form must be completed only once for each waste. Laboratories differ from most industries in that the majority of their wastes are not repetitive. Since discarded laboratory reagents and other experimental wastes are considered unique, they require land disposal restriction notifications for each packaging unit and every shipment. All hazardous waste shipments require generators to sign manifests identifying the hazards associated with the waste (i.e., EPA hazardous waste codes) and waste disposal facilities require waste profiles to further characterize them. The EPA already establishes and restricts waste disposal methods associated with each EPA hazardous waste code. The hazardous waste manifest process with generator-assigned EPA hazardous waste codes, disposal facility waste profiles, and the EPA's existing disposal restrictions associated with the EPA hazardous waste codes provide equivalent notification and acceptance of waste disposal restrictions.

- *ACS recommends the elimination of the land disposal restriction notification requirement for laboratories.*

Emergency Contingency Plans

The final Generator Improvements rule (81 FR 85732), subpart M: Preparedness, Prevention and Emergency Procedures added new requirements for Emergency Contingency Plans, such that all satellite accumulation areas and areas where waste is generated must be included in the plans. Institutions with research operations will often have thousands of areas meeting this definition, making it nearly impossible for these facilities to comply and overwhelming emergency responders with information that is impractical and not useful. The previous requirements for including only the central accumulation areas have been sufficient for emergency responders.

- *ACS recommends that EPA allow laboratory facilities to include only central accumulation areas in Emergency Contingency Plans.*

Alternative Standards for Episodic Generation

The Generator Improvements rule (81 FR 85732) provides a new allowance for very small quantity generators and small quantity generators to maintain their generator status during episodic events that result in an exceedance of the quantity limit for the generator's usual category. The time period for removal of waste to a TSD facility is 45 days, while many institutions must comply with bidding processes that can take more than 45 days to complete. Large quantity generators are allowed to store waste for up to 90 days.

- *ACS recommends that the EPA extend the time period for removal of waste from a VSQG to TSD facility to 90 days.*

Treatment of Hazardous Waste in the Laboratory without a Permit

Some EPA and state regulations have been interpreted to prohibit the treatment of even very small quantities of waste in laboratories. Many of these wastes could be safely rendered non-hazardous or less-hazardous through fundamental laboratory procedures. The procedures for many of these treatment processes are well established, and the expertise to treat these wastes safely is available. Additional controls, including requirements for written plans, training, and quantity limits, would provide assurance of proper handling. These procedures would reduce the volume of hazardous wastes that must be transported for off-site treatment or incineration and represents good, waste-minimization practice.

- *ACS recommends that legislation, rulemaking, and guidance allow qualified laboratory personnel to treat laboratory scale quantities, as defined by OSHA, of hazardous waste without a permit.*