Fermi National Accelerator Laboratory

FERMILAB-Pub-85/131
1300.000

REGULATING THE WASTE GENERATOR*

Robert L. Allen and Samuel I. Baker

September 1985

*Submitted to Professional Safety.

Operated by Universities Research Association Inc. under contract with the United States Department of Energy

Regulating the Waste Generator

by Robert L. Allen and Samuel I. Baker

Hazardous waste regulations became effective for the small quantity generator in July 1985. EPA estimates there will be about 100,000 to 175,000 such generators. The small quantity generator produces less than 1000 kg (2200 lbs) of hazardous waste in a month. Generators of larger volumes of hazardous waste have been regulated since November 1980. Hazardous wastes are defined by EPA in the Code of Federal Regulations.[1] Basically there are four types of hazardous waste:

- ignitable - flash point $< 140^{o}F$.
- reactive - unstable (explosive, reacts violently with water) or contains cyanide or sulfide.
- corrosive - pH < 2 or > 12.5.
- toxic - fails a particular test prescribed by EPA.

The regulations go into great detail on the specific processes and constituents which make a waste hazardous.

Small Quantity Generator Requirements

Except for a few acutely hazardous substances, the small quantity generator can generate up to 100 kg in a month and dispose of it properly without getting involved in the manifest system. Proper disposal is achieved by turning it over to a facility allowed to receive it. Such a facility can be one which recycles or benefically uses the waste, but usually it will be a hazardous waste disposal site.

An off-site shipment of hazardous waste by a generator of over 100 kg in a month requires the completion of the Hazardous Waste Manifest form. The waste must be accompanied by the form and must go to an approved facility via a licensed hazardous waste hauler. Packaging and labeling of the hazardous waste must conform to DOT regulations.[2] The manifest system is a tracking system to ensure that the waste gets to the appropriate place. Within 35 days from the shipment date the generator should receive a copy of the manifest from the receiving facility. If not, the generator must inquire concerning the shipment. If he does not receive the signed copy within 45 days, the generator

must file an exception report to the EPA (or to the State if the EPA has authorized the State to act in its behalf).

If the small quantity generator allows the total accumulation of hazardous waste to exceed 1000 kg, he must comply with more stringent regulations. Specifically, shipment off the site is required within 90 days of that date.

Regulations for Large Quantities

Once the generation of hazardous waste exceeds 1000 kg in a month, e.g., several 55 gallon drums full, the generator must notify the appropriate regulatory agency (EPA or the State) and obtain an identification number. The generator supplies facility and waste information on the notification form. The manifest system must be used for shipments. In addition, the generator must package, label, and temporarily store hazardous waste as prescribed in the regulations.[1] The label must have the words "Hazardous Waste" on it and an accumulation start date is required.

Accumulation

At the point of generation a hazardous waste can be accumulated for a maximum of 90 days provided the amount does not exceed 55 gallons. From the time 55 gallons is reached, the generator has three days to move the waste to the generator's temporary storage area. The latter requires inspection, proper containers, and segregation of incompatible wastes. Storage at the temporary storage location is limited to 90 days. For storage longer than 90 days the many additional requirements of a storage facility must be met.[3]

Characterization

Characterization of the waste is necessary for segregation during storage and for determination of a suitable disposal or recycle method. EPA has developed procedures for characterizing wastes, but the simplest way is to know the process which generated the waste. A little training and supervision can keep employees from mixing wastes. Usually the characteristics can be found in Material Safety Data Sheets, in chemical references, or by contacting the manufacturer. Then analyses may not be required. Unknowns are expensive to characterize (approximately $400 per sample).

Selection of a Vendor

Future liability has made the selection of the vendor for handling the hazardous waste a crucial step. Often the waste can be recycled. Solvents such as Freon® are valuable and can usually be reclaimed. If the waste is not suitable for

reclamation, many methods of treatment and/or disposal are available. The vendors will be very helpful in selecting a method, but the generator should exercise caution. EPA regulations are written giving generators "cradle to grave" responsibilty for the wastes. Turning the waste over to the vendor is not the end of the process. The generator needs to know precisely the final deposition of the waste. In fact, treatment/disposal site inspections by the generator are highly recommended.

Considerable expense has been and is still being incurred by those generators who used hazardous waste sites which later required federal or state involvement in clean-up. In the future the generator can expect some companies to go bankrupt and default on their obligations. The generator can end up paying again for disposal. Regulations are written to prevent such future occurrences, but if they do occur, the generator is clearly liable for his own wastes.

Shipment

On-going waste streams are more economically handled in drum quantities. Small quantities of miscellaneous chemicals will inevitably be generated. Compatible small quantities can be placed in separate containers inside 55 gal drums for disposal as "lab packs." Shipment requires DOT-approved containers and labels, EPA-specified hazardous waste identification labels, and often some identification numbers assigned by the disposal facility. In addition, the Uniform Hazardous Waste Manifest form must be completed and signed by the generator and the licensed waste transporter before shipment.

As of September 1, 1985 the generator's signature on the manifest certifies that he has a program to reduce the volume and toxicity of the waste generated and that he has selected an appropriate method for treatment, storage, or disposal of the waste. Efforts to minimize hazardous waste generation must be documented in the biennial report (annual in some states) report to EPA or to the State. This report must be submitted by March 1 of the even numbered years and contain the description and quantity of hazardous wastes generated during the previous calendar year.

Some states require the Uniform Hazardous Waste Manifest for all wastes which cannot be put in a sanitary landfill. Examples of such wastes are oils, ethylene glycol solutions, soluble machine cutting oils, and other industrial process liquids. The generator should also take precautions for mineral oils sold as secondary fuels. Metal constituents can turn these into hazardous wastes requiring expensive disposal.

Treatment and Disposal

The receipt of hazardous waste by the treatment, storage, or disposal facility is announced to the generator by the return of the Uniform Hazardous Waste Manifest. Actual treatment or disposal will occur later. The generator should follow up to be sure this happens. Operators of hazardous waste incinerators are issuing certificates of destruction. It is advisable to get similar assurances from other vendors by specification in the contracts.

Storage Facility

The generator might decide to operate his own treatment, storage, or disposal facility. At Fermi National Accelerator Laboratory (Fermilab), a Department of Energy basic research facility with 2200 employees, such a decision was made in 1980. Fermilab became a storage facility because a number of radioactive polychlorinated biphenyl (PCB) capacitors were generated which could not be disposed of within 90 days.

Additional Requirements

There are many additional requirements imposed on a storage facility.

- Secondary containment.
- Acids and alkalis in separate containment areas.
- Trained operators.
- Emergency procedures including a contingency plan.
- Secure area such as a fence with a locked gate or a 24-hour surveillance system.
- Appropriate sign on the gate.
- Weekly inspections.
- Operating records at the facility.
- Closure plan.

Wastes may be stored indefinitely at a storage facility and wastes may be received from the other generators. In practice, Fermilab ships wastes approximately every 90 days (except for the radioactive PCB capacitors) and does not accept wastes from other generators.

Operational Experience

From a single open shed the Fermilab Hazardous Waste Storage Facility has grown to three buildings since 1978. The most recent addition is a chemical waste building. It is heated to prevent freezing of waste liquids. The shelter from the sun will also prevent overpressuring and venting of drums. The interior is mostly a large containment area. There is also a small office and a chemical waste testing area with hood, eyewash and shower. Safety cabinets are used for segregating small containers of hazardous chemicals.

Only about 30% of the waste handled is hazardous waste by EPA regulations. The rest cannot go to a sanitary landfill by State of Illinois regulations and must be manifested to an appropriate site if the disposal option is selected. The storage facility has been a convenience for coordinating on-site waste collection and off-site waste shipments. On-site collection from the points of generation is done routinely twice a month. A few drums and several smaller containers are normally picked up. Fermilab has developed some labels and forms for internal tracking of wastes. The form requesting a waste pick-up is returned to the generator indicating what was picked up and what was refused, e.g., for improper packing or identification.

The storage facility has interim status with EPA scheduled to request a permit application by November 1, 1988. At the present time the advantages outweigh the disadvantages. Thus, Fermilab expects to complete the Part B permit application.

Conclusion

Hazardous waste regulations now apply to the small quantity generator, and an effort has been made by EPA to make them less burdensome than for generators of larger quantities. The requirements for a storage facility are even more stringent but Fermilab has developed such a facility for its own use. Careful selection of a disposal method and vendor is necessary to reduce future liability and clean-up expenses.

References

1. Title 40, Code of Federal Regulations, Parts 260-265, "Hazardous Waste Regulations."

2. Title 49, Code of Federal Regulations, Part 172, "Hazardous Materials Tables and Hazardous Materials Communications Regulations."

3. Title 40, Code of Federal Regulations, Parts 264-265, "Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities."