

**ATTACHMENT 11**

# Universal Wastes

## What are universal wastes?

Universal wastes are a subset of hazardous wastes that may be accumulated and transported in Minnesota under reduced requirements. These wastes are referred to as *universal wastes* because, at some point, almost every business and government agency generates them. Universal wastes in Minnesota are regulated by the Minnesota Pollution Control Agency (MPCA) and the metropolitan counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington (Metro Counties).

Universal wastes nationwide include:

- Batteries page 3
- Lamps page 3
- Mercury-containing equipment page 3
- Pesticides page 4

In Minnesota, three additional types of waste may also be managed as universal waste:

- Dental amalgam being recycled page 5
- Pretreated dental wastewater page 5
- Aerosols and compressed gas cylinders page 5

If you do not manage these wastes as universal waste, manage them as fully regulated hazardous waste.

## What wastes are not universal wastes?

Waste streams commonly confused with universal waste include non-hazardous batteries, electronic waste, architectural paint, and lighting ballasts and small capacitors containing polychlorinated biphenyls (PCBs). Each of these has its own management requirements:

- **Non-hazardous batteries:** Batteries that are not hazardous at the time of disposal are not universal waste. Non-hazardous batteries include alkaline, carbon zinc, chloride zinc (commonly labeled *heavy duty*), nickel metal hydride (NiMH), zinc air, lithium batteries that are nine volts or less, and higher voltage lithium batteries that have been discharged to less than one volt. Although non-hazardous, you are still encouraged to recycle them if collection is available.
- **Electronic waste:** Wastes containing circuit boards or cathode ray tubes (CRTs) may be managed in Minnesota under the reduced requirements discussed in MPCA fact sheet #w-hw4-15, Managing Electronic Wastes, available at <https://www.pca.state.mn.us/sites/default/files/w-hw4-15.pdf>.
- **Architectural paint:** Latex and oil-based architectural paint and related coatings generated by Very Small Quantity Generators (VSQGs) may be transported to paint collection sites as discussed in MPCA fact sheet #w-hw4-37a, Architectural Paint, available at <https://www.pca.state.mn.us/sites/default/files/w-hw4-37a.pdf>.
- **PCB-containing ballasts and small capacitors:** Lighting ballasts and small capacitors that may contain polychlorinated biphenyls (PCBs) must be managed under the requirements discussed in MPCA fact sheet #w-hw4-48f, Managing PCBs in Ballasts and Small Capacitors, available at <https://www.pca.state.mn.us/sites/default/files/w-hw4-48f.pdf>.

## Managing universal wastes

A business or government agency that generates, transports, or stores universal waste is a *universal waste handler*. Sites that recycle, treat, or dispose of universal waste are *destination facilities*. Destination facilities must comply with the standard hazardous waste requirements for recycling, treatment, or disposal facilities.

Universal waste handlers are classified as *Small Quantity Handlers* or *Large Quantity Handlers*, depending on the amount of universal waste accumulated at any one time. Table 1 shows the universal waste handler categories and requirements for each.

Table 1: Universal waste handler categories and requirements

| Small Quantity Handlers (SQH)   | Large Quantity Handlers (LQH)  |
|---|--|
| Accumulate less than 5000 kilograms (approximately 11,000 pounds) total universal waste at one site at any one time | Accumulate 5000 kg (approximately 11,000 pounds) or more total universal waste at one site at any one time |

### And are required to

|  |  |   |
|--|--|---|
| Hazardous Waste Identification number (HWID) | Not required   |   |
| Employee training                            | Provide universal waste handling and emergency procedure information.<br>Training records are not required.  | Ensure employees are thoroughly familiar with universal waste handling and emergency procedures.<br>Training records are not required.  |
| Broken or leaking universal waste            | Place leaking or broken universal waste that may release hazardous constituents into a compatible closed container. Ensure the container can fully contain the hazardous constituents (i.e., is airtight for broken lamps and liquid-tight for broken batteries). Universal waste broken accidentally may still be managed as universal waste in Minnesota. Deliberate universal waste breakage is <i>prohibited treatment</i> .<br>Debris contaminated by leaking universal waste, spill clean-up materials, and recovered or removed constituents, such as free liquid mercury, are <i>newly generated wastes</i> , not universal waste, and must be evaluated or assumed to be hazardous. |   |
| Labeling                                     | Label each universal waste or container with one of these phrases: <ul style="list-style-type: none"><li>● Universal Waste - [type of universal waste], such as 'Universal Waste Batteries'</li><li>● Waste [type of universal waste], such as 'Waste Thermometers'</li><li>● Used [type of universal waste], such as 'Used Lamps'</li></ul>   |   |
| Accumulation time                            | Accumulate universal waste for no more than one year from the date you generated or received the universal waste at your site. Mark the universal waste with the generated or received date or keep records to verify how long you have accumulated it.  |   |
| Off-site shipments                           | Ship only to a site that has agreed to accept the universal waste.<br>If the universal waste is a hazardous material under the U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR), ensure you meet all HMR shipping requirements. See MPCA fact sheet #w-hw2-53, Requirements for Transporting Waste to a VSQG Collection Program, at <a href="https://www.pca.state.mn.us/sites/default/files/w-hw2-53.pdf">https://www.pca.state.mn.us/sites/default/files/w-hw2-53.pdf</a> .   |   |
| Shipping records                             | Keeping shipping records is recommended, but not required.   | Keep records of each universal waste shipment received or sent for at least three years from the shipment date.<br>Ensure records include at least the: <ul style="list-style-type: none"><li>● Shipper and recipient of the shipment</li><li>● Type and quantity of the universal waste</li><li>● Date the shipment was sent or received</li></ul> |
| Prohibitions                                 | Do not dispose, dilute, or treat universal waste except for those activities specifically allowed for each different universal waste discussed below. Do not crush, shred, or burn any universal waste.  |   |
| Liability                                    | Remember that universal waste remains hazardous waste; you are ultimately responsible for its proper recycling or disposal to hazardous waste standards.   |   |
| Hazardous waste generator size               | Do not count universal waste towards your hazardous waste generator size. The MPCA does not require reporting of universal waste. If located in a Metropolitan county, check with your county for reporting requirements.  |   |

## Batteries

*Universal waste batteries* include any hazardous waste electrochemical storage device that consists of an anode, cathode, and electrolyte. Universal waste batteries include, but are not limited to lead acid, nickel cadmium, lithium greater than nine volts (9V), silver-containing, and mercury-containing types.

You may drain electrolyte from your universal waste batteries, however the drained electrolyte is a newly generated waste and not a universal waste. Manage the drained electrolyte as a hazardous waste unless you evaluate it as non-hazardous. For more information on evaluating wastes, see MPCA fact sheet #w-hw1-01, Evaluate Waste, at: <https://www.pca.state.mn.us/sites/default/files/w-hw1-01.pdf>.

You may also discharge universal waste batteries if you can do so safely using either the method recommended by the battery manufacturer or a complete discharge device (CDD). Do not simply short-circuit batteries to discharge them; it may cause a fire or battery explosion. Lithium batteries discharged to less than one volt may be managed as non-hazardous waste in Minnesota, but may remain subject to HMR transport requirements.

You may accumulate different types of universal waste batteries together as long as you ensure they will not short-circuit or cause a fire during accumulation. When you ship universal waste batteries off site, ensure you comply with applicable HMR requirements to prevent short circuits during transport. You may need to enclose each battery in a non-conducting bag or wrap, insulate terminals, or pack batteries to prevent them from touching each other or conductive materials.

## Lamps

*Universal waste lamps* include any hazardous waste bulb or tube portion of an electrical lighting device. universal waste lamps include, but are not limited to fluorescent, high intensity discharge (HID), mercury vapor, low and high pressure sodium (LPS and HPS), metal halide, and neon (includes lamps containing other noble gases such as argon, krypton, or xenon).

### 'Green tip' fluorescent lamps

Certain models of fluorescent lamps are designed to pass the hazardous waste test for mercury, and are commonly labeled as 'low mercury' or by having green-colored metal end caps, known as 'green tips'. These lamps do still contain mercury, and in Minnesota must still be recycled. 'Green tip' fluorescent lamps from businesses may not be disposed as solid waste.

### LEDs

Although the bulb portions of most light-emitting diodes (LEDs) are not hazardous and thus not universal waste lamps, the attached circuit boards are regulated electronic wastes in Minnesota. See MPCA fact sheet #w-hw4-15, Managing Electronic Wastes, at <https://www.pca.state.mn.us/sites/default/files/w-hw4-15.pdf>.

### On-site crushing or cracking

In Minnesota, you may not crush the hazardous portion of universal waste lamps on your site unless you can demonstrate that no hazardous constituents (such as mercury) will be released to the environment from the entire crushing process, including filter changes. The MPCA is not aware of any commercially available lamp crushing equipment that can currently meet this standard.

The MPCA discourages cracking the shell of a universal waste lamp to attempt to remove the hazardous portion of the lamp. The hazardous portion of many universal waste lamps is contained in an inner sealed arc tube or capsule. Heat and chemical reactions in the arc tube may cause the glass to become brittle. This creates a high risk for damage and mercury release if you attempt to extract the tube from the lamp.

### Accumulation

If you accumulate more than 1000 universal waste lamps that you did not generate yourself, you must establish financial assurance with the MPCA. Complete and submit MPCA form #w-hw7-20, Lamp Accumulation Financial Assurance Form, at <https://www.pca.state.mn.us/sites/default/files/w-hw7-20.doc>.

## **Mercury-containing equipment**

*Universal waste mercury-containing equipment* is any discarded device that contains liquid mercury integral to its function. Universal waste mercury-containing equipment includes but is not limited to thermometers, thermostats, barometers, pressure gauges, switches, relays, and pump seals. Lamps that contain gaseous or powdered mercury are universal waste lamps, not mercury-containing equipment. Batteries that contain powdered or amalgamated mercury are universal waste batteries, not mercury-containing equipment.

You may remove sealed mercury ampoules and open housings holding mercury from universal waste mercury-containing equipment only if you do all of the following:

- Perform the removal over a tray, pan, or other containment device large enough to catch and contain any mercury that could spill from the equipment.
- Provide appropriate mercury spill clean-up materials and equipment.
- Ensure the mercury is contained in the original sealed ampoules or you seal any original open housings airtight immediately after removal.
- Perform air monitoring to ensure you do not exceed Minnesota Occupational Safety and Health (MNOSHA) exposure levels. For questions, contact MNOSHA. See More information on page 6.
- Do not pour, extract, or remove liquid mercury from any mercury-containing equipment.

Manage spilled mercury, clean-up materials and debris, and any free liquid mercury or mercury in containers such as flasks or vials, as newly generated D009 hazardous waste. These wastes are not universal waste.

Note: Sales and donations of mercury and mercury-containing equipment in Minnesota are strictly regulated. If you plan to donate or sell liquid mercury or mercury-containing equipment instead of disposing of it, see MPCA fact sheet #w-hw4-26, Selling Mercury Items, at <https://www.pca.state.mn.us/sites/default/files/w-hw4-26.pdf>.

## **Pesticides**

### **Wastes included**

Pesticides in Minnesota include fungicides, herbicides, insecticides, nematicides, and rodenticides.

*Universal waste pesticides* are hazardous waste pesticides that:

- Will be collected at a Minnesota Department of Agriculture (MDA)-authorized waste pesticide program. See Using an MDA-authorized program on page 5
- Will be collected at a waste pesticide program authorized in an adjoining state
- Have been recalled and will be collected by the manufacturer.

Universal waste pesticides do not include pesticides used for their intended purpose in accordance with their label instructions and MDA standards. universal waste pesticides also do not include medical sterilant products.

### **Labeling**

In addition to the standard universal waste labeling on page 2, ensure your universal waste pesticide containers also either:

- Retain their original manufacturer label
- Display complete DOT labeling and marking applicable under the HMR
- Bear an alternate label specified by the authorized waste pesticide collection program that has agreed to accept the universal waste pesticide

## **Using an MDA-authorized program**

To use an MDA-authorized program, you must be a pesticide *end user* as defined by the MDA. End users include farmers and others who use or intend to use pesticides themselves, and do not include dealers, manufacturers, formulator, or packagers.

Contact the MDA if you are unsure if you are an end user or eligible to use an MDA-authorized program. See [More information](#) on page 6.

- If you accumulate less than 300 pounds (about 35 gallons) of waste pesticide on your site at any one time, you may assume those waste pesticides are universal waste unless the MDA rejects them.
- If you accumulate 300 pounds or more of waste pesticide on your site at any one time, must manage them under the full hazardous waste requirements, until you have:
  1. Notified the MDA of the type and volume of your waste pesticides.
  2. The MDA has agreed to accept your waste pesticides. After the MDA has agreed to accept your waste pesticides, you may manage them as universal waste.

## **Dental amalgam being recycled**

*Dental amalgam being recycled* is mercury-containing amalgam generated by dental care providers from which mercury will be reclaimed. Dental amalgam includes but is not limited to amalgam capsules, extracted teeth, filter-trap waste and amalgam-separator sludge.

Document that your dental amalgam wastes are recycled and not disposed. Dental amalgam wastes that will not be recycled are fully regulated hazardous wastes.

Extracted teeth containing dental amalgam are not infectious wastes in Minnesota; however, your amalgam-recycling vendor may require that you disinfect the teeth before accepting them for recycling.

## **Pretreated dental wastewater**

*Pretreated dental wastewater* is mercury-containing dental wastewater that has been pretreated using an amalgam separator approved by the MPCA. See the MPCA's Managing dental waste webpage, at <https://www.pca.state.mn.us/quick-links/managing-dental-waste> for information about amalgam separators.

Transport pretreated dental wastewater as a universal waste to a publicly owned treatment works (POTW) or a Very Small Quantity Generator Collection Program that has agreed to accept the waste. Do not discharge pretreated dental wastewater to a septic system or any other subsurface treatment system (SSTS).

For a list of VSQG Collection Programs, see MPCA fact sheet #w-hw2-51, Very Small Quantity Generator Collection Programs, at <https://www.pca.state.mn.us/sites/default/files/w-hw2-51.pdf>.

## **Aerosols and compressed gas cylinders**

*Aerosols* are pressurized containers used to dispense liquid or gaseous products. Waste aerosols and compressed gas cylinders are containers with hazardous waste liquids, propellants, or gases that will no longer be used for their intended purpose and have not been shown to be empty for hazardous waste purposes.

Universal waste aerosols must be accumulated to prevent accidental activation of the dispensing valves. Leaking universal waste aerosols must be accumulated in compatible, liquid-tight, labeled containers.

You may puncture universal waste aerosols and compressed gas cylinders at your site if you meet certain conditions, including collecting and managing all liquids, safeguarding employee safety and health, and complying with the Minnesota State Fire Code. However, some aerosols and compressed gas cylinders may present unusual safety risks when punctured and be inadvisable for on-site management.

See MPCA fact sheet #w-hw4-00, Waste Aerosols and Compressed Gas Cylinders, at <https://www.pca.state.mn.us/sites/default/files/w-hw4-00.pdf>.

## More Information

Guidance and requirements in this fact sheet were compiled from the Code of Federal Regulations, Part 40, Section 273; Minnesota Statutes, Chapters §18B and §115A; Minnesota Rules, Chapters 1509, 7001, and 7045; and incorporate regulatory interpretation decisions made by the MPCA on September 9, 2008; October 27, 2008; December 31, 2008; and April 27, 2011; and June 10, 2015. Visit the U.S. Government Printing Office at <http://www.gpo.gov/fdsys/> to review the Code of Federal Regulations directly. Visit the Office of the Revisor of Statutes at <https://www.revisor.mn.gov/pubs> to review the Minnesota Statutes and Rules.

Contact your Metropolitan County or the MPCA with your questions. The MPCA's Small Business Environmental Assistance Program can also provide free, confidential regulatory compliance assistance. Notify the Minnesota Duty Officer immediately following any universal waste or hazardous waste incident.

### Metro County Hazardous Waste Offices

|                  |   |
|------------------|---|
| Anoka .....      | 763-422-4260  |
| .....            | <a href="https://www.anokacounty.us/">https://www.anokacounty.us/</a>           |
| Carver .....     | 952-361-1800  |
| .....            | <a href="http://www.co.carver.mn.us/">http://www.co.carver.mn.us/</a>           |
| Dakota .....     | 952-891-7557  |
| .....            | <a href="https://www.co.dakota.mn.us/">https://www.co.dakota.mn.us/</a>         |
| Hennepin .....   | 612-348-3777  |
| .....            | <a href="http://www.hennepin.us/">http://www.hennepin.us/</a>                   |
| Ramsey .....     | 651-266-1199  |
| .....            | <a href="https://www.ramseycounty.us/">https://www.ramseycounty.us/</a>         |
| Scott .....      | 952-496-8177  |
| .....            | <a href="http://www.scottcountymn.gov/">http://www.scottcountymn.gov/</a>       |
| Washington ..... | 651-430-6655  |
| .....            | <a href="https://www.co.washington.mn.us/">https://www.co.washington.mn.us/</a> |

### Minnesota Occupational Safety & Health

|                 |   |
|-----------------|---|
| Toll free ..... | 1-877-470-6742  |
| Metro .....     | 651-284-5050  |
| .....           | <a href="http://www.dli.mn.gov/mnoshaw.asp">http://www.dli.mn.gov/mnoshaw.asp</a> |

### Minnesota Pollution Control Agency

|                               |   |
|-------------------------------|---|
| Toll free (all offices) ..... | 1-800-657-3864  |
| All offices .....             | 651-296-6300  |
| .....                         | <a href="https://www.pca.state.mn.us/">https://www.pca.state.mn.us/</a> |

### Minnesota Duty Officer

|                 |                |
|-----------------|----------------|
| Toll free ..... | 1-800-422-0798 |
| Metro .....     | 651-649-5451   |

### Small Business Environmental Assistance Program

|                 |   |
|-----------------|---|
| Toll free ..... | 1-800-657-3938  |
| Metro .....     | 651-282-6143  |
| .....           | <a href="https://www.pca.state.mn.us/sbeap/">https://www.pca.state.mn.us/sbeap/</a> |

### Minnesota Technical Assistance Program

|                 |   |
|-----------------|---|
| Toll free ..... | 1-800-247-0015  |
| Metro .....     | 612-624-1300  |
| .....           | <a href="http://www.mntap.umn.edu">http://www.mntap.umn.edu</a> |

### Minnesota Department of Agriculture

|                 |   |
|-----------------|---|
| Toll free ..... | 1-800-967-2474  |
| Metro .....     | 612-201-6000  |
| .....           | <a href="http://www.mda.state.mn.us/">http://www.mda.state.mn.us/</a> |

**ATTACHMENT 12**

9441.1987(77)

RCRA/SUPERFUND HOTLINE MONTHLY SUMMARY

SEPTEMBER 87

3. Waste Identification

A company generates aerosol paint and solvent cans from painting and cleaning operations. The cans are empty as per common industry practices used to empty such devices to less than 3% by weight of the total capacity of the container (40 CFR 261.7(b)(1)(1) & (111)). The cans may still contain propellant, making the cans reactive if put in contact with a strong initiating force (i.e., intense pressure or heat). Since for all practicable purposes the cans are free of contents that might have been hazardous wastes, would this be regulation of the aerosol cans themselves? RIL #43 specifically excluded the regulation of the cans, and solely addressed only the potentially hazardous contents. Therefore, would aerosol cans free of hazardous waste, but still potentially reactive because of contained propellant be regulated as hazardous waste?

Irrespective of the lack of contained waste, the aerosol cans would be a RCRA hazardous waste because they demonstrate the hazardous characteristic of reactivity (40 CFR 261.23(a)(6)).

Source: Mike Petruska (202) 475-6676

Research: Andy O'Hare

**ATTACHMENT 13**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OCTOBER 7, 1993

Mr. John DiFazio  
Chemical Specialties Manufacturers Association  
1913 Eye Street, N.W.  
Washington, D.C. 20006

Dear Mr. DiFazio:

Over the past several years we have received numerous questions from you and others concerning the regulatory status of used aerosol cans under the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations. I understand that confusion about these issues may be hindering your cooperative efforts with the Steel Recycling Institute (SRI) to increase steel aerosol can recycling in this country. As environmentally protective recycling is an important part of the Agency's waste management goals, I hope that this letter will help to answer some of these questions.

RESIDENTIAL AEROSOL CANS

First, I would like to emphasize that under the federal RCRA regulations, household waste (including aerosol cans) is excluded from the definition of hazardous waste (40 CFR 261.4 (b) (1)). Thus, any aerosol cans generated by households are not regulated as hazardous waste. Because this exclusion attaches at the point of generation (i.e., the household) and continues to apply throughout the waste management cycle, household aerosol cans collected in municipal recycling programs and subsequently managed in recycling programs continue to be excluded from the hazardous waste management regulations.

The data submitted by SRI<sup>1</sup> appear to confirm that the majority of used residential aerosol cans contain very little residual product or propellant. Along with your experience working with many of the 600 or more communities currently recycling these cans, the data suggest that aerosol cans can be effectively recycled.

The Agency does recommend that communities running residential steel recycling programs educate their participants to recycle only empty steel aerosol cans. Participants could also be educated to: 1) purchase only the amount of consumer products that they need to minimize the quantities of unused products, 2) give unused products to someone else who can use them, 3) take unused or partially full containers to a household hazardous waste collection program if available, or 4) dispose of the partially full containers as directed on the label.

COMMERCIAL/INDUSTRIAL AEROSOL CANS

I understand that you and SRI are also interested in facilitating the recycling of aerosol cans generated by commercial or industrial generators. The remainder of this letter discusses only these non-household waste items.

We have been asked whether aerosol cans exhibit the characteristic of reactivity. At this time, the Agency is not able to determine whether various types of cans that may have contained a wide range of products are reactive. However, a steel aerosol can that does not contain a significant amount of liquid would clearly meet the definition of scrap metal (40 CFR 261.1 (c)(6)), and thus would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it were to be recycled. Therefore, a determination of reactivity or any other characteristic would not be relevant. Aerosol cans that have been punctured so that most of any liquid remaining in the can may flow from the can (e.g., at either end of the can), and drained (e.g., with punctured end down), would not contain significant liquids.

It should be noted that since the process of emptying the aerosol cans is part of a recycling process (i.e., scrap steel recycling), this activity would be exempt from RCRA regulation under 40 CFR 261.6(c) (except as specified in 40 CFR 261.6(d)). The Agency recommends that these activities be conducted in a safe and environmentally protective manner and that care be taken to properly manage any contents removed from the container (both liquids and gases). Any liquids or contained gases removed from aerosol cans may be subject to regulation as hazardous wastes if they are listed in Subpart D of 40 CFR Part 261 or if they exhibit any characteristics of hazardous waste as described in Subpart C of 40 CFR Part 261.

We have also been asked to determine whether used aerosol cans would meet the definition of "empty" under 40 CFR 261.7. Again, if the steel cans are being recycled, it is not necessary to determine whether they are "empty" under the criteria listed in 40 CFR 261.7 As long as an aerosol can being recycled does not contain significant liquids, the can is exempt as scrap metal. However, in order to dispose of a can as non-hazardous waste (rather than recycle it), a generator would have to determine that the can is empty under 40 CFR 261.7 (or that the product it contained was not hazardous), and that the can itself is not hazardous. If a can is to be disposed of, and either contains or is hazardous waste, it must be managed under all applicable regulations.

Please be aware that this letter addresses only the federal hazardous waste regulations. Authorized State agencies implement the RCRA program in their states (although some parts of the program may be implemented by the U.S. EPA Regions), and that state regulations may be more stringent than the federal regulations. Anyone managing aerosol cans should contact the appropriate state environmental agency or U.S. EPA Regional Office to determine how the regulations of that particular state will apply to their activities.

I hope this information is useful in your efforts to increase steel recycling. Thank you for the assistance that you and the Chemical Specialties Manufacturers Association have provided my staff in researching these issues. If you have any further questions, please call Charlotte Mooney of my staff at (202) 260-8551.

Sincerely,

Jeffery D. Denit  
Acting Director,  
Office of Solid Waste

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<sup>1</sup> Texas Steel Aerosol Can Recycling Program, Final Report; Steel Can Recycling Institute (now Steel Recycling Institute); December 7, 1992.

**ATTACHMENT 14**

9442.1993(02)

United States Environmental Protection Agency  
Washington, D.C. 20460  
Office of Solid Waste and Emergency Response

October 7, 1993

Mr. Gregory L. Crawford  
Vice President, Recycling Operations  
Steel Recycling Institute  
Foster Plaza X  
680 Anderson Drive  
Pittsburgh, Pennsylvania 15220

Dear Mr. Crawford:

Over the past several years we have received numerous questions concerning the regulatory status of used aerosol cans under the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations. I understand that confusion about these issues may be hindering your efforts to increase steel aerosol can recycling in this country. As environmentally protective recycling is an important part of the Agency's waste management goals, I hope that this letter will help to answer some of these questions.

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cans, the data suggest that aerosol cans can be effectively recycled. The Agency does recommend that communities running residential steel recycling programs educate their participants to recycle only empty steel aerosol cans. Participants could also be educated to: 1) purchase only the amount of consumer products that they need to minimize the quantities of unused products, 2) give unused products to someone else who can use them, 3) take unused or partially full containers to a household hazardous waste collection program if available, or 4) dispose of the partially full containers as directed on the label.

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40 CFR Part 261.

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Please be aware that this letter addresses only the federal hazardous waste regulations. Authorized State agencies implement the RCRA program in their states (although some parts of the program may be implemented by the U.S. EPA Regions), and that state regulations may be more stringent than the federal regulations. Anyone managing aerosol cans should contact the appropriate state environmental agency or U.S. EPA Regional Office to determine how the regulations of that particular state will apply to their activities.

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Sincerely,  
Jeffrey D. Denit  
Acting Director  
Office of Solid Waste

cc: Waste Management Division Directors,  
U.S. EPA Regions I - X

- 1 Texas Steel Aerosol Can Recycling Program, Final Report;  
Steel Can Recycling Institute (now Steel Recycling  
Institute), December 7, 1992.

**ATTACHMENT 15**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

April 10, 1996

SUBJECT: Universal Waste Rule - Implementation

FROM: Steve Herman, Assistant Administrator  
Office of Enforcement and Compliance Assurance

Elliott P. Laws, Assistant Administrator  
Office of Solid Waste and Emergency Response

TO: Regional Administrators

On May 11, EPA promulgated a final rule which promotes the environmentally sound collection of several hazardous waste categories for recycling or proper disposal under the Resource Conservation and Recovery Act (RCRA). This rule, known as the Universal Waste Rule (40 CFR Part 273), creates a framework for streamlined regulatory requirements for hazardous waste batteries, certain pesticides and mercury-containing thermostats (universal wastes). The Universal Waste rule is designed to achieve the following three goals: 1) encouraging resource conservation while ensuring adequate protection of human health and the environment, 2) improving implementation of the current Subtitle C hazardous waste regulatory program, and 3) removing these universal wastes from the municipal waste stream by providing incentives for individuals and organizations to collect currently unregulated wastes and then ensuring that treatment of those wastes meets the hazardous waste management standards. To achieve these goals, environmentally sound collection systems must be developed for universal wastes. As such, another goal is to foster the development of an appropriate collection infrastructure in all of the States as quickly as possible.

The Agency encourages the timely development of the types collection systems allowed by this new regulation. EPA recognizes that both States and private industry may delay the implementation of universal waste collection programs until States adopt and become authorized for this rule. To facilitate the speedy implementation of the Universal Waste rule, EPA is encouraging States to quickly adopt the rule. Because most States are already authorized for the base RCRA program, authorization for the Universal Waste rule should be swift and uncomplicated. Therefore, Regions should make authorization of States for this rule a high priority in Regional State Authorization Programs and should process States' authorization applications as quickly as possible.

By finalizing 40 C.F.R. Part 273, EPA has taken the position that managing wastes in

compliance with those standards is environmentally protective. Therefore, where States are implementing the Part 273 standards but have not yet received authorization, Regions should take enforcement actions involving universal wastes only where handlers of such wastes are not in full compliance with the Part 273 standards. Regions should continue to address universal waste management practices that may present an imminent and substantial endangerment to human health and the environment under the authority provided in section 7003 of RCRA.

If you or your staff have any technical questions or concerns regarding the Universal Waste Rule or the policies contained in this memorandum, please contact Kristina Meson at (202) 260-5736 or Bryan Groce at (202) 260-9550 of the Office of Solid Waste.

**ATTACHMENT 16**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

FEB 13 1997

MEMORANDUM

SUBJECT : Universal Waste Questions and Answers Document

FROM: Mike Shapiro  
Office of Solid Waste

TO: Senior RCRA Policy Managers  
Regions I-X

Since the promulgation of the May 11, 1995 Universal Waste rule (60 FR 25492), several States have begun to adopt the Federal program. As a result, many questions have been raised with respect to State implementation and enforcement for hazardous wastes covered under the Universal Waste Federal program. Further, States have asked the Environmental Protection Agency (EPA) Regional Offices for guidance on adding other types of hazardous waste to their State universal waste programs. To assist those States during the implementation process and to provide you with the Agency's position on these issues, the Office of Solid Waste has prepared a Questions and Answers (Q&A) document. The Q&A document also addresses other issues related to universal waste management (e.g., universal waste generation and transportation issues). I have attached the document for your information and encourage you to share it with the appropriate State Officials.

If you have any questions regarding State authorization, please contact Wayne Roepe at (703) 308-8630. If you have other questions regarding universal waste management, please contact Bryan Groce of my staff at (703) 308-8750.

Attachment

cc: RCRA Branch Chiefs, Regions I-X  
State Authorization Section Chiefs, Regions I-X  
RCRA Community Relations Coordinators, Regions I-X  
RCRA Enforcement Branch Chiefs, Regions I-X

## QUESTIONS AND ANSWERS - - UNIVERSAL WASTES (UW)

1. Can a state include additional wastes in its UW program at the same time that it establishes the program and then submit both the program and the additional UW to EPA for authorization review at the same time? For example, can a state adopt a UW rule that regulates fluorescent bulbs and antifreeze as UW?

Yes, a state can designate additional waste streams as UW at the same time that it creates its own UW rule. However, it must find that the wastes meet its criteria for inclusion in the UW program, and its criteria must be analogous to the federal criteria set out in 273.81. See preamble to final UW rule at 60 FR 25512, 25537. The state need not submit the new wastes to EPA for authorization. EPA will review and authorize the state's UW program (including the criteria for adding wastes to the program) and the 3 waste streams included in the federal program. EPA will not conduct any authorization review on any additional, state-only UW.

EPA, however, requests that states send copies of tentative decisions to include new wastes (and proposed management standards for such wastes) to the appropriate EPA Regional Office to give EPA an opportunity to comment. See the response to question 5 for more detail on this process.

2. Can a state itself petition the Agency to add wastes to the federal UW rules - or does the petition have to come from a private party?

A state itself can petition.

3. a. How will the petition process work at the state level? Will it require public participation and rulemaking to add a UW to an authorized state program?

EPA is requiring states to adopt petition procedures equivalent to the federal petition procedures. This requires states to provide notice and an opportunity for public comment on any tentative decision to grant or deny a petition to include new universal wastes. See the preamble at 60 FR 25537. EPA also assumes that the state will need to follow its normal rulemaking procedures to create any new management standards needed for the new UW.

4. b. How will EPA adopt a UW - using the Federal Register and public comment process?

Yes. As required by 40 CFR 260.20 (c), if EPA receives a UW petition, it will publish a notice of tentative decision and announce a comment period in the Federal Register. After considering all comments, EPA will publish notice of its final decision in the Federal Register. The same process applies to both decisions to grant and to decisions to deny petitions.

4. a. Can a state add wastes that are state-only hazardous wastes?

Yes. State hazardous waste programs can be more stringent and broader in scope than federal programs. Consequently, states may regulate as "state-only" hazardous wastes materials that

are only solid wastes under the federal program. States may streamline their regulation of these "state-only" hazardous wastes by including them in their UW programs.

b. Can a state add wastes that are non-hazardous?

Yes. A state could add non-hazardous solid wastes to its UW program by designating such wastes as state-only hazardous wastes and then designating them as UW wastes. Such wastes would be subject to the state's ordinary hazardous waste requirements for treatment and disposal. EPA assumes that states would want this result, because they probably would designate nonhazardous wastes as universal wastes to divert them from the nonhazardous waste disposal facilities that currently handle them. If, however, a state determined that some aspects of its hazardous waste management regime should not apply to these state-only hazardous wastes, it could create exemptions. (Exemptions would be permissible since the wastes would not be regulated as hazardous wastes under the federal program.)

One exception applies. A state may not designate as a UW any waste that is hazardous under the federal program due to a rule promulgated under HSWA authority for which the state is not authorized. (For example, a state that was not authorized for the Toxicity Characteristic could not designate a waste that exhibited the TC as a universal waste. See the preamble to the final rule at 25537.)

5. After a state has adopted and is authorized for the UWR -does the state have ultimate decision-making authority to add wastes or does EPA still have involvement? And what is EPA's role during the petition process, post authorization?

States authorized for the UW rule will not be required to submit program revisions for any addition of wastes to their UW program. EPA requests that states send a copy of their tentative findings and any draft regulations for managing the new, state-only universal wastes to the appropriate EPA Regional Office. This will provide EPA with an opportunity to comment on the state's proposed action. EPA encourages states to coordinate EPA's review and comment with the opportunity to comment that the state must provide for the public. If EPA finds that a state has added wastes that do not qualify, or that the management standards are not sufficiently protective, and that, as a result, the state's program is less stringent than the federal program, EPA has authority to withdraw authorization of the state's hazardous waste program as provided in Part 271.

EPA will not conduct any authorization review of the new state-only UW and new management standards. EPA takes the position that, when it authorizes a state to add wastes to the UW category, it authorizes in advance the state's new, state-only universal wastes and the management standards for such wastes. All changes to state regulations needed to implement a UW program for the new UW automatically become part of the authorized state program once they take effect under state law.

6a. When will the EPA rule on fluorescent lights be final (designation as a Federal UW vs. management as solid waste)?

EPA has not yet decided when it will promulgate a final rule regarding regulation of fluorescent lamps as discussed in the July 1994 proposal.

b. What happens if a state adds fluorescent lamps to its UWR and then EPA decides to come out with a conditional exemption for fluorescent lamps?

If the conditional exemption is less stringent than the state UW rule, the state would have the option of adopting the exemption, but would not be required to do so.

7.a. Where do LDR recordkeeping requirements fit in --- only at the final destination facility?

Yes.

b. Is the destination facility responsible (liable) for identifying the treatment standards/technologies and filling out certification forms?

Yes. The destination facility is the first entity that handles a UW that is responsible for compliance with any of the LDR requirements, including recordkeeping. For UW handlers that are not subject to the LDR rules, the prohibitions on dilution under the UW program provide the same protection as the dilution prohibition under the LDR program. (See, e.g., 40 CFR 273.11.)

8.a. Are all batteries included in the Federal UWR, or just those considered hazardous?

EPA's federal UW program does not apply to all batteries. The exceptions are listed in 40 CFR 273.2(b). Generally, the battery must first be a waste. (Note that unused batteries are not always wastes -- someone must first make a decision to discard them (i.e., treat, recycle, or dispose of the unused batteries)). Next, the battery must be classified as a hazardous waste under either a hazardous waste listing or a characteristic test and must not be generated by a household. One category of batteries which are both wastes and hazardous wastes is nevertheless exempt from the UW regulations in Part 273: spent lead-acid batteries managed under 40 CFR Part 266. Finally, the recently enacted "Mercury-Containing and Rechargeable Battery Management Act" changes states' options for regulating some batteries which are hazardous waste under RCRA. Specifically, the law prohibits states from imposing requirements that are not identical to those found in the May 11, 1995 Universal Waste rule for the following types of hazardous waste batteries: used rechargeable batteries, lead-acid batteries not covered by 40 CFR part 266 subpart G, rechargeable alkaline products, certain mercury-containing batteries banned from domestic sale, and used consumer products containing rechargeable batteries that are not easily removable. The law does allow states to implement and enforce collection, storage, and transport requirements identical to those included in the Universal Waste rule.

b. Do lead acid batteries fall under the UWR or do they stay under the lead-acid battery exemption?

Under the federal program, lead acid batteries are managed under Part 266, subpart G rather than the UW program. EPA chose to retain the Part 266 standards for these batteries to avoid disrupting the existing recycling program for such batteries because they provide for

protection of human health and the environment and because they have been highly successful (with recycling rates in excess of 90 percent). States, however, retain the authority to regulate lead-acid batteries more stringently. Hence, they may choose to regulate lead acid batteries under their UW programs.

9. A handler who transports UW is considered a UW transporter. Is this for any quantity of UW (i.e., in the used oil regulations a used oil generator can transport up to 55 gallons of their own used oil without being considered a used oil transporter)?

Yes, all handlers who transport any quantity of UW must meet the UW transporter requirements. There is no de minimis exemption like the one in the used oil program.

10. Would a program consisting of a state-sponsored network of handler locations at private businesses be considered a "waste pesticide collection program"?

Yes. Part 273 does not require states to operate the waste pesticide collection programs described in 40 CFR 273.3(a)(2) in order for the pesticides managed under such programs to be eligible for the UW program.

11. As the UWR is implemented, do the traditional liability issues change? For example, who is liable for any mismanagement of a UW at a handler location, in transit, and at the destination facility? Are any and all handlers liable for mismanagement at a destination facility or at subsequent handlers? Or, just the "final handler" that chooses the destination facility? Do we lose cradle-to-grave responsibility with UWR?

Under the full Subtitle C program, only the waste handler that violates a hazardous waste regulation is "liable" (i.e., subject to enforcement) for that violation. Generators of hazardous waste are not responsible for mismanagement by subsequent waste handlers. The UW rule does not change this allocation of responsibility.

Generators are responsible for subsequent mismanagement under CERCLA, however. The UW rule does not change CERCLA liability. Since UW are still hazardous wastes, persons who generate UW remain liable under CERCLA for remediation of any releases of UW.

12. When UW is shipped to a destination facility, does it have to be relabeled as HW at that facility, or will UW labeling be sufficient?

Universal wastes remain hazardous wastes. Destination facilities must comply with all currently applicable requirements for hazardous waste management facilities. However, none of these regulations require facility owners or operators to relabel the containers holding universal wastes.

13a. Handlers can keep UW on site up to one year after the date it is received or generated. A year after a handler has received a UW, can the UW go to another handler, or must it go to destination facility?

Universal waste can only be sent off-site to another universal waste handler, destination facility, or foreign destination. Theoretically, each receiving facility could accumulate the waste for an entire year before sending it off to another handler, however, the regulatory impact analysis EPA prepared for the UW rulemaking indicates that there is no economic incentive for retaining UW for such long periods.

b. Within that year, can the UW go to several handlers?

Yes, but states can adopt a more stringent rule that would prevent this. Also, although theoretically wastes could go from one collection facility to another forever, the regulatory impact analysis EPA prepared for the UW rulemaking indicates that there is no economic incentive for retaining UW for such long periods.

14. Pesticides that are included in FIFRA recalls can be managed under the UWR. Does this apply to pesticides that have been included in past FIFRA recalls or just recalls instituted after the UWR is adopted?

The timing of the recall is not significant. The UW rule is not limited to pesticides that are recalled after the UW rule takes effect.

15. Pesticides that are managed by farmers in accordance with 40 CFR 262.70 are not subject to the UW rules. Can farmers continue to dispose of pesticides recalled under FIFRA under 262.70?

Yes, if a recall under FIFRA allows a farmer to dispose of a pesticide on his own property, he may do so by complying with 262.70.

16. How are mixtures of UW and HW regulated -- as a HW if the HW is listed or the mixture exhibits a characteristic? If the HW is not listed, and the mixture of UW and HW does not exhibit a characteristic, does LDR apply to the mixture?

The UW rules apply only to wastes meeting the criteria for being classified as UW. They do not apply to mixtures of UW wastes and ordinary, "non-universal" hazardous wastes. Such mixtures are subject to the regular hazardous waste regulations.

However, the status of mixtures of characteristic UW and characteristic hazardous wastes needs clarification. If the mixture no longer exhibits a characteristic, it would no longer be classified as a hazardous waste, but would remain subject to the land disposal restrictions. Formerly characteristic wastes are not excused from compliance with LDR treatment standards merely because they cease to exhibit a characteristic.

In addition, two exceptions apply. First, mixtures of UW and conditionally exempt small quantity generator (CESQG) hazardous wastes are subject to UW rules. This is because CESQG hazardous wastes are exempt from regular Subtitle C regulation. See the UW preamble at 25510. By the same logic, mixtures of UW wastes and hazardous wastes exempted under the household hazardous waste provision are subject to the UW provisions rather than the regular hazardous waste provisions.

The normal hazardous waste mixture rules would apply to mixtures of UW and nonhazardous solid wastes. If the UW waste were a listed waste, the mixture would be regulated as HW (although initial handlers would be subject only to the UW rules). If the UW were a characteristic waste, and the mixture ceased to exhibit the characteristic, the mixture would be nonhazardous but LDR treatment requirements would continue to apply.

17. A large quantity universal waste handler (LQH UW) is required to notify EPA of its universal waste management, unless it had already so notified and received an EPA ID number. However, won't the LQH UW have to modify the initial notification to explain this additional activity?

No. If a handler has previously notified EPA of his hazardous waste management activities, he is not required to renotify. First time notifiers can submit a one-time notification described in 40 CFR 273.32(b), or alternatively, the 8700-12 notification form. If the 8700-12 notification form is used, the LQH UW must write "LQH UW" or "Universal Waste" on the portion of the form where activity is checked.

18. Does the UWR prohibit a generator from handling a UW in accordance with full RCRA C requirements, if desired?

The UWR requires a generator to handle their UW under 273. However, if the generator handles UW under full RCRA C then it would likely be complying with 273.

19. If a generator originates a shipment of hazardous waste that is considered a UW in the receiving state, how does the generator get a signed manifest?

The initiating facility (i.e., the generator) would complete a manifest and give copies to the hazardous waste transporter as required under 40 CFR 262.23(a). The initiating facility must ensure that the manifest is forwarded to and signed by the UW receiving facility (i.e., the designated TSD facility) and then sent back to the initiating facility.

20. a. Because a manifest is now not required, how will handlers know how and when their UW finally arrives at an appropriate destination facility?

Depending on whether the UW are shipped to another UW handler or a UW destination facility, the initiating facility (i.e., the generator) may not know if their UW arrives at an appropriate destination facility. For example, if the universal waste is shipped to another universal waste handler (i.e., an interim facility) before it is shipped to a designated facility, the originating facility would only have knowledge of the initial receiving facility. (See response to question 11). However, if the originating facility (i.e., the generator) sent the universal waste to a destination facility, Part 273 requires the originating facility to receive prior consent by a receiving facility (i.e., the destination facility) before the waste can be sent off-site.

b. Does EPA intend for the original handler to "designate" all the handlers and final destination facility?

No. The original handler (i.e., the initiating facility) is only responsible for designating the next UW handler (though the original handler is free to elect to designate the final destination facility)

21. What happens when UWR is adopted by a state but is not yet authorized by EPA? What is EPA obligated to enforce?

EPA may only enforce the authorized state program. The authorized program would continue to impose regular hazardous waste management standards on UW handlers until EPA approved the state's UW rule. Note, however, that once the rule is approved, designations of new, state-only UW and management standards for such wastes become part of the authorized program without action by EPA. See the response to question 5 above.

The Agency has also issued a memorandum (See the April 10, 1996 Memorandum addressed to the Regional Administrators from Steven A. Herman, Assistant Administrator of the Office of Enforcement and Compliance and Elliot P. Laws, Assistant Administrator of the Office of Solid Waste and Emergency Response) which asks the EPA Regional offices to exercise enforcement discretion (vis a vis unmanifested universal wastes) in States that are authorized for the RCRA base program and that are implementing the Part 273 standards but have not yet received final EPA authorization to do so. The memorandum further provides that the Regions should take enforcement actions involving universal waste only where handlers of such wastes are not in full compliance with the Part 273 standards. In other words, the Agency will not take federal action against handlers who manage hazardous waste batteries, hazardous waste pesticides, and mercury-containing thermostats pursuant to Part 273 standards in States that are currently in the process of adopting the universal waste rule. States, of course, may still pursue enforcement action against these handlers. The Agency hopes that the April 10, 1996 letter will facilitate implementation of the universal waste rule by states nationwide.

22. How are recycling facilities that receive UW regulated?

Recycling facilities are excluded from the definition of UW "handlers". See 40 CFR 273.6. They are subject to normal hazardous waste management requirements. Under those requirements, storage prior to recycling is regulated and requires a permit. See 40 CFR 261.6(c) (1). Many types of recycling processes are largely exempt from regulation (see 40 CFR 261.6(d)); others (such as burning to recover energy or materials) are regulated and require permits.

**ATTACHMENT 17**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

EMERGENCY

OFFICE OF  
SOLID WASTE AND  
RESPONSE

Richard J. Barlow, Chair  
Northeast Waste Management Officials' Association (NEWMOA)  
129 Portland Street, Suite 601  
Boston, MA 02114-2014

Dear Mr. Barlow:

I am pleased to respond to your May 23, 1996 letter, in which you support the State of New York Department of Environmental Conservation rulemaking petition regarding 40 CFR Part 263 relative to the transportation of hazardous waste. I also understand that you have serious concerns about the recent preemption determination by the U.S. Department of Transportation (DOT) which was published on December 6, 1995. (See 60 FR 62527). Specifically, you desire more regulatory oversight than is currently provided by the Resource Conservation and Recovery Act (RCRA) regulations for hazardous waste activities at transfer facilities.

As you know, the recent DOT preemption decision cited in your letter arose from a challenge lodged by the transporter industry against certain New York State regulations pertaining to activities at hazardous waste transfer facilities. Briefly, the State had enacted regulations which, among other things, prohibited certain load mixing activities at transfer facilities, and imposed secondary containment requirements in areas of these facilities reserved for off-vehicle storage. There is no federal counterpart to these state regulations in EPA's Part 263 regulations, and DOT's regulations do not impose similar restrictions. In the decision published in the Federal Register of December 6, 1995, DOT held that each of the challenged State regulations was preempted, because each was inconsistent with the uniform scheme of federal regulation which Congress intended for the control of interstate transportation of hazardous materials.

We are well aware of the long-standing interest of the States in the issues surrounding the regulation of hazardous waste transfer facilities. I also understand that unless and until there are revisions to the federal regulations governing transfer facilities, States which act alone to fill the perceived gaps in the federal RCRA transporter regulations (40 CFR Part 263) are likely to face similar challenges under the strong preemption authorities included by Congress in the 1990 amendments to the Hazardous Materials Transportation act (HMTA).

While I understand the resource issues that States are facing when they are forced to defend the validity of their laws before DOT or the courts, I note that this predicament arises primarily from the manner in which the Congress has allocated responsibility among the federal agencies and the States in the transportation area. The Congress has spoken in fairly unequivocal terms in RCRA 3003(b) that RCRA requirements addressing transporters must be consistent with the HMTA and regulations issued thereunder. The HMTA in turn provides DOT with considerable authority to preempt inconsistent State laws, particularly in certain of the so-called "covered areas" of hazardous materials regulation affected by New York's contested requirements, or, in those instances where inconsistent State laws would pose an obstacle to accomplishing or cat-tying out the HMTA's scheme of regulation. See 49 U.S.C. '5125. These types of strong preemption authorities are quite foreign to RCRA, but they are introduced into the transporter area by the statutory directive in RCRA to maintain consistency with the DOT framework.

On March 1, 1996, the Office of Solid Waste (OSW) stated to Commissioner Zagata of New York that OSW could not at this time commit our scarce federal rulemaking resources to the transfer facility problem without diverting resources from what I believe to be greater priorities for the RCRA program as a whole. This is still true today. However, at such time as our resources and priorities permit, we will revisit the merits of committing resources to resolving the transfer facility concerns. I do, however, appreciate NEWMOA's interest in supporting such a rulemaking.

I would like to be able to respond more positively to your letter at this time, but I know that our state partners understand that in these times, we must allocate our resources and energies judiciously. Thank you for bringing these concerns and suggestions to my attention. We appreciate the efforts of NEWMOA and its state members for their strong support for improving the RCRA program

Sincerely,

Michael Shapiro, Director  
Office of Solid Waste

**ATTACHMENT 18**

STORAGE OF HAZARDOUS WASTE AT TRANSFER FACILITIES AND THE  
AUTHORIZATION OF STATES REGULATING THIS STORAGE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460  
Office of Solid Waste and Emergency Response

August 17, 1994

Charles Dickhut  
Chemical Waste Transportation Institute  
4301 Connecticut Avenue, N.W.  
Suite 300  
Washington, D.C. 20008

Dear Mr. Dickhut,

Thank you for your letter of June 3, 1994, in which you request that EPA clarify and reaffirm its interpretations and policies regarding the storage of hazardous waste at transfer facilities, the authorization of states for provisions regulating this storage, and the preemption of such provisions by the Department of Transportation (DOT) under the Hazardous Materials Transportation Act (HMTA).

In your letter you request that EPA reaffirm specific previous interpretations of the 10-day storage limitation for transfer facilities. RCRA regulations at 40 CFR 263.12 state that "a transporter who stores manifested shipments of hazardous waste in containers meeting the requirements of 262.30 at a transfer facility for a period of ten days or less is not subject to regulation under Parts 270, 264, 265, and 268 of this chapter with respect to the storage of those wastes." These regulations do not restrict the use of multiple transfer facilities for one shipment nor do they place further restrictions on the number of days available at each facility (i.e., they do not limit the total number of days spent at all transfer facilities to 10). Of course, each transfer facility must meet the definition found at 260.10.

A key element of the 260.10 definition is the "normal course of transportation." Storage of manifested shipments of hazardous waste at a transfer facility must be within the normal course of

transportation. As the Agency has stated in the past, EPA can envision situations in which hazardous waste may be stored at one transfer facility for 10 days, and then be stored at a second transfer facility for an additional 10 days, and remain within the normal course of transportation (see the attached June 7, 1990 letter from Sylvia Lawrence to Robert Duprey and the June 22, 1994, letter from Michael Petruska to Kevin Igli).

Your letter also asked for clarification of the phrase "normal course of transportation." The 10-day storage limitation at transfer facilities was based on information provided by the transportation industry, which indicated that shipments of hazardous waste normally take no longer than 15 days, including both the actual transportation and the temporary holding of the shipment (see 45 FR 86966, December 31, 1980). Individual circumstances, however, may prevent shipments from being completed within this time period. EPA believes that what constitutes "the normal course of transportation" depends on the particular facts of each case. Therefore, EPA does not believe it is appropriate to set a generic time limit beyond which a shipment would automatically be outside the normal course of transportation.

You next inquire whether the authorization of a provision affecting the storage of hazardous wastes at transfer facilities under 3006 of RCRA would make that provision no longer subject to preemption under the HMTA because it was "otherwise authorized by Federal law." (See 49 App. U.S.C. 1811(a).) EPA formulated its current position on RCRA state authorization and preemption under the HMTA during the 1992 authorization of California for the base RCRA program. EPA does not believe that it is appropriate to use the RCRA Subtitle C authorization process to make specific determinations of possible preemption under the HMTA. Pursuant to the HMTA, the DOT has established procedures both for making preemption determinations and providing waivers from preemption. A possible issue of preemption under HMTA would not affect the program's eligibility for RCRA authorization where the preemption concern is unrelated to RCRA authorities. (See 57 FR 32726, July 23, 1992, and the attached October 29, 1992, letter from Devereaux Barnes to Cynthia Hilton). Thus, EPA still believes that the RCRA authorization decisions provide no basis for shielding state regulations touching upon hazardous materials transport from possible preemption challenges raised under the HMTA.

Finally, you ask whether EPA has the authority to review a

state's interpretation of an authorized provision. You cite the Arkansas Department of Pollution Control and Ecology's (DPC&E) interpretation of the 10-day transfer facility storage limitation as a cause for concern. According to your letter, the DPC&E enforces a 10-day storage limitation that applies to the total storage time at all transfer facilities, not the storage time at each one. Although EPA has a different interpretation than what you have described for the DPC&E, the state of Arkansas is authorized for the transporter requirements, and thus has primary authority for implementing them. EPA's response to a state's interpretation of an authorized provision would depend on how it was implemented in a particular situation, and factors such as any relevant state court decisions or an enforcement action. EPA is currently not aware of any instance where this differing interpretation has been implemented. Further, EPA believes that the question of whether Arkansas' interpretation deviates from national HMTA transportation standards should be addressed under the HMTA preemption process, rather than through RCRA state authorization.

I hope that this clarification is of assistance to you. Further guidance regarding the issues you have raised may be available in the future, as a result of EPA discussions with DOT. If you have further questions regarding the authorization of states for the regulation of hazardous waste transporters and transfer facilities, please contact Wayne Roepe of my staff at 703-308-8630. If you have further questions regarding the EPA regulations regarding the transportation of hazardous waste, please contact Ann Codrington of my staff at 202-260-4777.

Sincerely,

Michael Shapiro, Director  
Office of Solid Waste

**ATTACHMENT 19**

9541.1985(07)

RCRA/SUPERFUND HOTLINE MONTHLY SUMMARY

MAY 85

Manifest Use and State Authorization

3. A spent solvent, which is hazardous by characteristic only (e.g. ignitable D001), is transported from the generator in Montana, to a reclamation facility in Texas. Both Montana and Texas are states with final authorization for the RCRA program. The transporter will also go through Wyoming which is a non-authorized state (i.e., it is under the Federal RCRA program).

Pursuant to 40 CFR §261.6(a), characteristic hazardous wastes which are reclaimed are not subject to RCRA regulations. According to §261.2(c) as amended by the January 4, 1985, Federal Register (50 FR 614), however, all spent solvents, characteristic or listed, will be defined as "spent materials" and will be regulated as "solid wastes" prior to reclamation. Thus, per §261.6(b), in the January 4, 1985, rule, generators and transporters of recyclable hazardous materials (e.g., spent solvents) are subject to Parts 262 and 263 (generator and transporter standards, respectively). The complicating factor is that this new definition of solid waste and respective recycling regulations may go into effect at different times through the country depending on whether a state is authorized or not.

The January 4, 1985, rule will be effective in non-authorized states on July 5, 1985. States with final authorization, such as Montana and Texas, may have up to January 4, 1987, to adopt this rule. Therefore, a characteristic ignitable spent solvent will be a regulated hazardous waste prior to reclamation in non-authorized states on July 5, 1985. In the transport situation described above, is the transporter required to carry the Uniform Hazardous Waste Manifest in Wyoming, since the spent solvent is a "hazardous waste" in Wyoming on July 5, 1985?

If the spent solvent is transported from Montana to Texas (EPA-authorized states) after July 5, 1985, the transporter need not carry the Uniform Hazardous Waste Manifest, even though the spent solvent is transported through Wyoming, which regulates the solvent as a RCRA waste. States through which the waste shipment travels may not dictate manifest requirements per 49 FR 1049

(March 20, 1984). When either the generator state (Montana) or the designated state (Texas) determines that the waste is hazardous, that waste will be subject to the Uniform Manifest requirements.

Source: Denise Hawkins (202) 382-2231

**ATTACHMENT 20**

**Regulatory Impact Assessment of the Potential Costs,  
Benefits, and Other Impacts of the Final Hazardous Waste  
Generator Improvements Rule**

Prepared for  
U.S. Environmental Protection Agency (EPA)  
Office of Resource Conservation and Recovery (ORCR)  
1200 Pennsylvania Avenue NW (Mailstop 5305P)  
Washington DC, 20460 USA

September 2016

## **2.3 HAZARDOUS WASTE GENERATION OF POTENTIALLY AFFECTED FACILITIES**

This section characterizes the hazardous waste generation of facilities in the regulated universe. The overall tonnages of hazardous waste and the number of waste streams are relevant to estimating the cost of managing this waste in compliance with the provisions of the final rule. The methodology for estimating the quantities of hazardous waste generation varies by generator status. Where possible, this RIA relies on generation data from EPA's 2013 BR database. The BR database is used to develop annual aggregate and per facility generation estimates for LQG facilities. For other facility types, however, the data available from the BR database are insufficient to develop nationwide hazardous waste generation estimates. Consequently, this RIA derives generation estimates for SQGs and VSQGs by combining the limited data available in the BR database with facility-level generation data obtained from individual states.

### **2.3.1 LQG HAZARDOUS WASTE GENERATION**

EPA's 2013 BR database is the primary data source for estimating hazardous waste generation for LQG facilities. In 2013, LQGs generated approximately 35.2 million tons of hazardous waste in aggregate. Combining this value with the LQG facility count presented above suggests that LQGs, on average, generate approximately 1,692 tons of hazardous waste per facility per year.<sup>14</sup> The BR data also suggest that LQGs reported an average of 13 different waste streams per facility, with a few large facilities reporting several thousand waste streams. The 50 largest LQGs generated 29.2 million tons of hazardous waste, or 83 percent of the total amount reported in the 2013 BR.

Exhibit 2-5 reports the overall and average per facility hazardous waste quantities generated on an annual basis as well as the average number of waste streams per facility for LQGs by state. As shown in the exhibit, the Gulf States of Texas, Louisiana, and Mississippi account for approximately 63 percent of all hazardous waste generated by LQGs in the United States. In contrast, New York and California, which have the largest number of LQG facilities, collectively account for just 5 percent of all hazardous waste generated by LQGs.

Exhibit 2-6 provides information on the distribution of LQGs by industry. Facilities in the BR database may be characterized by one or several North American Industry Classification System (NAICS) codes. To avoid double-counting, this RIA uses the first (or primary) NAICS code listed in the BR database for a facility. As shown in the exhibit, the five largest industries (in terms of hazardous waste generation) account for approximately 95 percent of all hazardous waste generated by LQGs, while comprising less than 20 percent of all LQGs. These industries include: chemical manufacturing (NAICS 325); petroleum and coal products manufacturing (NAICS 324); waste management and remediation services (NAICS 562); primary metal manufacturing (NAICS 331); and mining (NAICS 212). In terms of the number of generators, the largest industries—accounting for approximately 50 percent of the LQG universe—include: health and personal care stores (NAICS 446); chemical manufacturing (NAICS 325); utilities (NAICS 221); fabricated metal product manufacturing (NAICS 332); and general merchandise stores (NAICS 452).

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<sup>14</sup> This average (mean) value includes a small number of facilities that generate more than one million tons of hazardous waste per year. Thus, whereas the mean generation value per LQG is 1,692 tons per year, the median (50<sup>th</sup> percentile) is only 7.6 tons per year. Because the cost and benefit calculations in Chapters 3 and 4, respectively, do not use LQG waste generation as an input (incremental costs and benefits for LQGs under the rule are not dependent on waste quantities), the choice of using the mean or median has no impact on the estimated costs and benefits of the rule.

EXHIBIT 2-5: LQG HAZARDOUS WASTE QUANTITIES AND NUMBER OF WASTE STREAMS GENERATED BY STATE<sup>1</sup> (2013)

| STATE<br>[A]         | NUMBER OF<br>FACILITIES<br>IN BR DATA<br>[B] | TOTAL HAZARDOUS<br>WASTE GENERATED<br>(TONS)<br>[C] | PERCENTAGE OF<br>TOTAL<br>HAZARDOUS<br>WASTE<br>[D] | HAZARDOUS WASTE<br>GENERATED PER<br>FACILITY<br>(TONS)<br>[E=C/B] | AVERAGE<br>NUMBER OF<br>WASTE STREAMS<br>PER FACILITY<br>[F] |
|----------------------|--|---|---|---|--|
| Alabama              | 386  | 708,436   | 2.0%  | 1,835   | 13   |
| Alaska               | 27   | 2,272   | 0.0%  | 84  | 20   |
| Arizona              | 210  | 73,948  | 0.2%  | 352   | 17   |
| Arkansas             | 101  | 405,592   | 1.2%  | 4,016   | 27   |
| California           | 2,775  | 1,519,549   | 4.3%  | 548   | 13   |
| Colorado             | 108  | 37,000  | 0.1%  | 343   | 60   |
| Connecticut          | 416  | 19,666  | 0.1%  | 47  | 12   |
| Delaware             | 60   | 14,886  | 0.0%  | 248   | 40   |
| District of Columbia | 36   | 551   | 0.0%  | 15  | 8  |
| Florida              | 386  | 107,387   | 0.3%  | 278   | 16   |
| Georgia              | 517  | 280,866   | 0.8%  | 543   | 11   |
| Guam                 | 9  | 165   | 0.0%  | 18  | 70   |
| Hawaii               | 23   | 466,293   | 1.3%  | 20,274  | 35   |
| Idaho                | 23   | 4,624   | 0.0%  | 201   | 28   |
| Illinois             | 836  | 613,053   | 1.7%  | 733   | 10   |
| Indiana              | 710  | 1,026,708   | 2.9%  | 1,446   | 13   |
| Iowa                 | 144  | 51,095  | 0.1%  | 355   | 9  |
| Kansas               | 213  | 1,349,985   | 3.8%  | 6,338   | 9  |
| Kentucky             | 297  | 194,945   | 0.6%  | 656   | 27   |
| Louisiana            | 368  | 4,789,750   | 13.6%   | 13,016  | 11   |
| Maine                | 87   | 3,048   | 0.0%  | 35  | 8  |
| Maryland             | 469  | 47,995  | 0.1%  | 102   | 9  |
| Massachusetts        | 415  | 29,285  | 0.1%  | 71  | 14   |
| Michigan             | 493  | 627,889   | 1.8%  | 1,274   | 17   |
| Minnesota            | 340  | 349,886   | 1.0%  | 1,029   | 9  |
| Mississippi          | 164  | 1,590,017   | 4.5%  | 9,695   | 7  |
| Missouri             | 330  | 281,820   | 0.8%  | 854   | 11   |
| Montana              | 62   | 7,065   | 0.0%  | 114   | 9  |
| Navajo Nation        | 1  | 3   | 0.0%  | 3   | 4  |
| Nebraska             | 69   | 29,225  | 0.1%  | 424   | 22   |
| Nevada               | 94   | 14,688  | 0.0%  | 156   | 13   |
| New Hampshire        | 134  | 3,293   | 0.0%  | 25  | 42   |
| New Jersey           | 711  | 396,104   | 1.1%  | 557   | 48   |
| New Mexico           | 41   | 889,256   | 2.5%  | 21,689  | 87   |
| New York             | 3,095  | 234,378   | 0.7%  | 76  | 4  |
| North Carolina       | 675  | 77,163  | 0.2%  | 114   | 22   |
| North Dakota         | 26   | 375,751   | 1.1%  | 14,452  | 6  |
| Northern Marianas    | 0  | 0   | 0.0%  | 0   | 0  |
| Ohio                 | 975  | 1,539,561   | 4.4%  | 1,579   | 16   |
| Oklahoma             | 170  | 100,331   | 0.3%  | 590   | 7  |
| Oregon               | 210  | 56,930  | 0.2%  | 271   | 10   |
| Pennsylvania         | 1,004  | 257,716   | 0.7%  | 257   | 8  |
| Puerto Rico          | 94   | 35,902  | 0.1%  | 382   | 22   |
| Rhode Island         | 103  | 6,083   | 0.0%  | 59  | 17   |
| South Carolina       | 386  | 176,950   | 0.5%  | 458   | 8  |
| South Dakota         | 31   | 1,460   | 0.0%  | 47  | 7  |
| Tennessee            | 363  | 97,020  | 0.3%  | 267   | 6  |
| Texas                | 970  | 15,624,473  | 44.4%   | 16,108  | 7  |
| Trust Territories    | 0  | 0   | 0.0%  | 0   | 0  |
| Utah                 | 127  | 40,359  | 0.1%  | 318   | 28   |

**EXHIBIT 2-5: LQG HAZARDOUS WASTE QUANTITIES AND NUMBER OF WASTE STREAMS GENERATED BY STATE<sup>1</sup> (2013)**

| STATE<br>[A]             | NUMBER OF<br>FACILITIES<br>IN BR DATA<br>[B] | TOTAL HAZARDOUS<br>WASTE GENERATED<br>(TONS)<br>[C] | PERCENTAGE OF<br>TOTAL<br>HAZARDOUS<br>WASTE<br>[D] | HAZARDOUS WASTE<br>GENERATED PER<br>FACILITY<br>(TONS)<br>[E=C/B] | AVERAGE<br>NUMBER OF<br>WASTE STREAMS<br>PER FACILITY<br>[F] |
|--------------------------|--|---|---|---|--|
| Vermont                  | 43   | 3,323   | 0.0%  | 77  | 12   |
| Virgin Islands           | 1  | 10,064  | 0.0%  | 10,064  | 17   |
| Virginia                 | 397  | 58,641  | 0.2%  | 148   | 12   |
| Washington               | 456  | 258,975   | 0.7%  | 568   | 16   |
| West Virginia            | 144  | 52,027  | 0.1%  | 361   | 10   |
| Wisconsin                | 424  | 204,520   | 0.6%  | 482   | 9  |
| Wyoming                  | 22   | 3,493   | 0.0%  | 159   | 13   |
| <b>TOTAL<sup>2</sup></b> | <b>20,771</b>                                | <b>35,151,466</b>                                   | <b>100.0%</b>                                       | <b>1,692</b>  | <b>13</b>  |

**Notes:**

1. Data from U.S. EPA, National Biennial RCRA Hazardous Waste Report (based on analysis of 2013 BR flat files). Documents and data are available at [ftp://ftp.epa.gov/rcrainfodata/br\\_2013/](ftp://ftp.epa.gov/rcrainfodata/br_2013/).
2. The values in Columns E and F are calculated on a per facility basis as the sum of values across all generators divided by the total number of generators from Column B.

**EXHIBIT 2-6: LQG HAZARDOUS WASTE QUANTITIES AND NUMBER OF WASTE STREAMS GENERATED BY INDUSTRY<sup>1</sup> (2013)**

| NAICS<br>[A] | NAICS DESCRIPTION<br>[B]                                     | NUMBER OF<br>FACILITIES IN<br>BR DATA<br>[C] | TOTAL HAZARDOUS<br>WASTE GENERATED <sup>1</sup><br>(TONS)<br>[D] | PERCENTAGE OF<br>TOTAL<br>HAZARDOUS<br>WASTE<br>[E] | HAZARDOUS WASTE<br>GENERATED PER<br>FACILITY<br>(TONS)<br>[F=D/C] | AVERAGE<br>NUMBER OF<br>WASTE STREAMS<br>PER FACILITY <sup>1</sup><br>[G] |
|--------------|--|--|--|---|---|---|
| 325          | Chemical manufacturing                                       | 2,239  | 18,590,532   | 52.9%   | 8,303   | 13  |
| 324          | Petroleum and coal products manufacturing                    | 192  | 5,848,566  | 16.6%   | 30,461  | 24  |
| 562          | Waste management and remediation services                    | 620  | 4,811,348  | 13.7%   | 7,760   | 145   |
| 331          | Primary metal manufacturing                                  | 585  | 2,805,538  | 8.0%  | 4,796   | 7   |
| 212          | Mining (except oil and gas)                                  | 40   | 1,261,538  | 3.6%  | 31,538  | 13  |
| 332          | Fabricated metal, product manufacturing                      | 1,779  | 349,226  | 1.0%  | 196   | 6   |
| 493          | Warehousing and storage                                      | 301  | 222,186  | 0.6%  | 738   | 8   |
| 336          | Transportation equipment manufacturing                       | 867  | 147,618  | 0.4%  | 170   | 11  |
| 335          | Electrical equipment, appliance, and component manufacturing | 212  | 130,662  | 0.4%  | 616   | 9   |
| 333          | Machinery manufacturing                                      | 371  | 127,663  | 0.4%  | 344   | 8   |
| 334          | Computer and electronic product manufacturing                | 561  | 97,012   | 0.3%  | 173   | 13  |
| 488          | Support activities for transportation                        | 268  | 79,648   | 0.2%  | 297   | 5   |
| 326          | Plastics and rubber products manufacturing                   | 383  | 56,468   | 0.2%  | 147   | 7   |
| 221          | Utilities  | 1,825  | 52,270   | 0.1%  | 29  | 3   |
| 928          | National security and international affairs                  | 212  | 48,564   | 0.1%  | 229   | 72  |
| 561          | Administrative and support services                          | 29   | 47,033   | 0.1%  | 1,622   | 9   |
| 327          | Nonmetallic mineral product manufacturing                    | 148  | 46,374   | 0.1%  | 313   | 6   |
| 811          | Repair and maintenance                                       | 101  | 43,222   | 0.1%  | 428   | 6   |
| 423          | Merchant wholesalers, durable goods                          | 84   | 42,764   | 0.1%  | 509   | 4   |
| 424          | Merchant wholesalers, nondurable goods                       | 378  | 33,519   | 0.1%  | 89  | 8   |
| 339          | Miscellaneous manufacturing                                  | 261  | 28,299   | 0.1%  | 108   | 9   |
| 237          | Heavy and civil engineering construction                     | 159  | 25,920   | 0.1%  | 163   | 2   |
| 712          | Museums, historical sites, and similar institutions          | 11   | 23,072   | 0.1%  | 2,097   | 6   |
| 323          | Printing and related support activities                      | 242  | 21,182   | 0.1%  | 88  | 4   |
| 541          | Professional, scientific, and technical services             | 539  | 21,171   | 0.1%  | 39  | 20  |
| 531          | Real estate  | 42   | 16,309   | 0.0%  | 388   | 5   |
| 236          | Construction of buildings                                    | 31   | 13,870   | 0.0%  | 447   | 1   |
| 611          | Educational services   | 377  | 13,263   | 0.0%  | 35  | 21  |
| 211          | Oil and gas extraction                                       | 69   | 12,074   | 0.0%  | 175   | 7   |
| 322          | Paper manufacturing  | 138  | 11,332   | 0.0%  | 82  | 6   |
| 924          | Administration of environmental quality programs             | 19   | 10,746   | 0.0%  | 566   | 21  |
| 337          | Furniture and related product manufacturing                  | 152  | 9,992  | 0.0%  | 66  | 3   |
| 311          | Food manufacturing   | 78   | 9,239  | 0.0%  | 118   | 8   |
| 321          | Wood product manufacturing                                   | 156  | 8,612  | 0.0%  | 55  | 3   |
| 482          | Rail transportation  | 36   | 8,301  | 0.0%  | 231   | 4   |

EXHIBIT 2-6: LQG HAZARDOUS WASTE QUANTITIES AND NUMBER OF WASTE STREAMS GENERATED BY INDUSTRY<sup>1</sup> (2013)

| NAICS<br>[A] | NAICS DESCRIPTION<br>[B]                                     | NUMBER OF<br>FACILITIES IN<br>BR DATA<br>[C] | TOTAL HAZARDOUS<br>WASTE GENERATED <sup>1</sup><br>(TONS)<br>[D] | PERCENTAGE OF<br>TOTAL<br>HAZARDOUS<br>WASTE<br>[E] | HAZARDOUS WASTE<br>GENERATED PER<br>FACILITY<br>(TONS)<br>[F=D/C]<br>[F=D/C] | AVERAGE<br>NUMBER OF<br>WASTE STREAMS<br>PER FACILITY <sup>1</sup><br>[G] |
|--------------|--|--|--|---|--|---|
| 486          | Pipeline transportation                                      | 177  | 7,569  | 0.0%  | 43   | 3   |
| 622          | Hospitals  | 470  | 6,347  | 0.0%  | 14   | 10  |
| 425          | Wholesale electronic markets and agents and brokers          | 4  | 6,085  | 0.0%  | 1,521  | 3   |
| 621          | Ambulatory health care services                              | 184  | 5,372  | 0.0%  | 29   | 8   |
| 922          | Justice, public order, and safety activities                 | 19   | 4,921  | 0.0%  | 259  | 7   |
| 213          | Support activities for mining                                | 47   | 4,871  | 0.0%  | 104  | 5   |
| 313          | Textile mills  | 47   | 4,790  | 0.0%  | 102  | 7   |
| 532          | Rental and leasing services                                  | 16   | 4,569  | 0.0%  | 286  | 6   |
| 812          | Personal and laundry services                                | 228  | 4,205  | 0.0%  | 18   | 6   |
| 483          | Water transportation   | 36   | 3,355  | 0.0%  | 93   | 8   |
| 238          | Specialty trade contractors                                  | 59   | 3,322  | 0.0%  | 56   | 2   |
| 481          | Air transportation   | 33   | 2,823  | 0.0%  | 86   | 14  |
| 446          | Health and personal care stores                              | 4,448  | 2,245  | 0.0%  | 1  | 7   |
| 921          | Executive, legislative, and other general government support | 30   | 2,140  | 0.0%  | 71   | 12  |
| 713          | Amusement, gambling, and recreation industries               | 17   | 2,066  | 0.0%  | 122  | 6   |
| 485          | Transit and ground passenger transportation                  | 71   | 1,974  | 0.0%  | 28   | 3   |
| 711          | Performing arts, spectator sports, and related industries    | 5  | 1,429  | 0.0%  | 286  | 3   |
| 927          | Space research and technology                                | 12   | 1,340  | 0.0%  | 112  | 30  |
| 484          | Truck transportation   | 49   | 1,155  | 0.0%  | 24   | 13  |
| 312          | Beverage and tobacco product manufacturing                   | 17   | 941  | 0.0%  | 55   | 12  |
| 452          | General merchandise stores                                   | 868  | 866  | 0.0%  | 1  | 9   |
| 926          | Administration of economic programs                          | 51   | 804  | 0.0%  | 16   | 2   |
| 454          | Non-store retailers  | 10   | 496  | 0.0%  | 50   | 7   |
| 111          | Crop production  | 25   | 457  | 0.0%  | 18   | 3   |
| 115          | Support activities for agriculture and forestry              | 10   | 336  | 0.0%  | 34   | 2   |
| 447          | Gasoline stations  | 67   | 317  | 0.0%  | 5  | 3   |
| 444          | Building material and garden equipment and supplies dealers  | 27   | 235  | 0.0%  | 9  | 10  |
| 492          | Couriers and messengers                                      | 22   | 200  | 0.0%  | 9  | 22  |
| 316          | Leather and allied product manufacturing                     | 4  | 161  | 0.0%  | 40   | 7   |
| 512          | Motion picture and sound recording industries                | 6  | 132  | 0.0%  | 22   | 9   |
| 721          | Accommodation  | 3  | 98   | 0.0%  | 33   | 1   |
| 315          | Apparel manufacturing  | 2  | 96   | 0.0%  | 48   | 2   |
| 551          | Management of companies and enterprises                      | 6  | 83   | 0.0%  | 14   | 9   |
| 314          | Textile product mills  | 9  | 81   | 0.0%  | 9  | 3   |
| 441          | Motor vehicle and parts dealers                              | 8  | 76   | 0.0%  | 9  | 3   |
| 517          | Telecommunications   | 10   | 71   | 0.0%  | 7  | 1   |

**EXHIBIT 2-6: LQG HAZARDOUS WASTE QUANTITIES AND NUMBER OF WASTE STREAMS GENERATED BY INDUSTRY<sup>1</sup> (2013)**

| NAICS<br>[A] | NAICS DESCRIPTION<br>[B]  | NUMBER OF<br>FACILITIES IN<br>BR DATA<br>[C] | TOTAL HAZARDOUS<br>WASTE GENERATED <sup>1</sup><br>(TONS)<br>[D] | PERCENTAGE OF<br>TOTAL<br>HAZARDOUS<br>WASTE<br>[E] | HAZARDOUS WASTE<br>GENERATED PER<br>FACILITY<br>(TONS)<br>[F=D/C] | AVERAGE<br>NUMBER OF<br>WASTE STREAMS<br>PER FACILITY <sup>1</sup><br>[G] |
|--------------|---|--|--|---|---|---|
| 923          | Administration of Human Resource Programs                                     | 5  | 51   | 0.0%  |   | 10  |
| 511          | Publishing industries (except Internet)                                       | 6  | 45   | 0.0%  |   | 7   |
| 445          | Food and beverage stores  | 101  | 36   | 0.0%  | 0   | 4   |
| 453          | Miscellaneous store retailers   | 19   | 35   | 0.0%  | 2   | 8   |
| 525          | Funds, trusts, and other financial vehicles                                   | 5  | 34   | 0.0%  | 7   | 1   |
| 813          | Religious, grant-making, civic, professional, and similar orgs.               | 6  | 31   | 0.0%  | 5   | 2   |
| 722          | Food services and drinking places   | 1  | 15   | 0.0%  | 15  | 2   |
| 112          | Animal production   | 2  | 13   | 0.0%  | 7   | 5   |
| 925          | Administration of housing programs, urban planning, and community development | 3  | 11   | 0.0%  | 4   | 1   |
| 448          | Clothing and clothing accessories stores                                      | 1  | 5  | 0.0%  | 5   | 1   |
| 623          | Nursing and residential care facilities                                       | 2  | 5  | 0.0%  | 2   | 3   |
| 522          | Credit intermediation and related activities                                  | 1  | 5  | 0.0%  | 5   | 1   |
| 491          | Postal Service  | 2  | 3  | 0.0%  | 1   | 1   |
| 451          | Sporting goods, hobby, musical instrument, and book stores                    | 2  | 2  | 0.0%  | 1   | 6   |
| 442          | Furniture and home furnishings stores   | 12   | 2  | 0.0%  | 0   | 10  |
| 524          | Insurance carriers and related activities                                     | 1  | 1  | 0.0%  | 1   | 2   |
|              | <b>TOTAL<sup>2</sup></b>  | <b>20,771</b>                                | <b>35,151,466</b>  | <b>100.0%</b>                                       | <b>1,692</b>  | <b>13</b>   |

Notes:

1. Data from U.S. EPA, National Biennial RCRA Hazardous Waste Report (based on analysis of 2013 BR flat files). Documents and data are available at [ftp://ftp.epa.gov/rcreainfodata/br\\_2013/](ftp://ftp.epa.gov/rcreainfodata/br_2013/).
2. The values in Columns F and G are calculated on a per facility basis as the sum of values across all generators divided by the total number of generators from Column C.

**ATTACHMENT 21**

9498.1992(02)

United States Environmental Protection Agency  
Washington, D.C. 20460  
Office of Solid Waste and Emergency Response

December 30, 1992

MEMORANDUM

SUBJECT: Application of the BIF Rule to Heritage  
Environmental Services, Inc., Lemont Illinois

FROM: Sylvia K. Lowrance, Director  
Office of Solid Waste (OS-300)

TO: Karl E. Bremer, Chief  
RCRA Permitting Branch  
Office of RCRA, Region 5 (HRP-8J)

This is in response to your memorandum of November 20, 1992 regarding Heritage Environmental Services, Inc. in Lemont, Illinois, and the burning of a propellant mixture (mostly butane and propane) in the company's boiler. You specifically asked whether the burning of this mixture constitutes burning of a hazardous waste which would require them to comply with the boiler and industrial furnace (BIF) regulations.

Subpart H of 40 CFR Part 266 regulates the burning or processing of hazardous waste in boilers and industrial furnaces. However, before a substance can be classified as a hazardous waste, it must first meet the definition of a solid waste. In determining whether the butane and propane propellants are solid wastes, it must also be decided whether the burning of these materials constitutes the burning for energy recovery of a propellant (is a solid waste), or use as a fuel (is not a solid waste) for the reasons stated below.

As stated in your memo, Heritage plans to recover the materials from the aerosol cans and separate them into three streams: (1) scrap metal (crushed cans), (2) a liquid phase (household chemicals), and (3) a gaseous phase (propellants, mostly butane and propane). Heritage then plans to burn the recovered propellants from the aerosol cans in their on-site boiler for

energy value.

According to 40 CFR Section 261.2(c)(2)ii regulations, commercial chemical products that are listed in 40 CFR Section 261.33 as well as non-listed commercial chemical products that exhibit hazardous waste characteristics (see attached April 11, 1985 Federal Register notice explaining the regulatory status of non-listed commercial chemical products), are not classified as solid wastes when burned for energy recovery if they are themselves fuels. Since propane and butane are materials that are normally both used as fuels, when unused, they can be burned as fuels without being considered solid wastes.

Therefore, if the aerosol cans are full (not used), or partially full (in which case they would be considered off specification with the remaining propellants in the cans also being unused), then the butane and propane propellants would be classified as commercial chemical products. Since these products are fuels and being burned for energy recovery, they would not fall within the definition of a solid waste and would consequently not be considered a hazardous waste.

For the reasons stated above, Heritage would not be required to comply with the BIF regulations to burn the butane and propane propellants in their on-site boiler. However, this determination assumes that other hazardous constituents have been separated from the butane and propane propellants, and that the butane and propane are indeed being burned for energy recovery rather than to destroy other hazardous constituents contained in the aerosol cans.

If you have any additional questions or would like to discuss this further, please contact Karen Randolph of my staff on (703) 308-8651.

#### Attachment

cc: Christine Dibble, OSW; Mike Petruska, CAD; Steve Silverman, OGC; Bob Holloway, WMD; Sonya Saserville, PSPD

bcc: Juana Rojo, Region 5; Waste Combustion Permit Writers' Workshop; Karen Randolph PSPD

**ATTACHMENT 22**

9432.1988(04)

AEROSOL CANS, ON-SITE DEPRESSURIZATION OF  
OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

SEP 1988

Kurt E. Whitman, Project Coordinator  
SWInc.  
P.O. Box B  
Saukville, WI 53080

Dear Mr. Whitman:

This is in response to your July 1, 1988 letter requesting clarification on EPA's current interpretation on whether the depressurization of aerosol cans on-site would be considered treatment, requiring a RCRA permit. You also requested pertinent information on Ril #43 and on whether or not it has been rescinded. I am enclosing per your request a copy of Ril 43 and the 1985 memorandum which I believe is the one you are requesting.

You revealed in a July 26, 1988 telephone conversation with Doreen Sterling of my staff that your main interest in this issue was to determine the requirements for disposal of a wide variety of aerosol cans located at a number of Department of Defense facilities throughout the country.

The Agency is aware that conflicting interpretations have been given by the EPA Regional Offices, EPA Office of Solid Waste, and the RCRA Hotline regarding whether certain aerosol can disposal methods constitute treatment and whether or not a permit is required for this activity. The Agency is currently evaluating this problem and may decide to issue more specific guidance in the future if it is warranted. It is our policy, however, to refer issues of this nature to the Region in which the facility is located since they are normally best able to make a case-by-case determination on whether: (1) the waste in question is hazardous according to our regulations and (2) treatment is occurring.

RO 13225

According to our regulations, cans are hazardous if: (1) they contain a commercial chemical product on the 40 CFR 261.33(e) or (f) lists or exhibit one or more of the hazardous waste characteristics, and are not empty as defined under Sec. 261.7; and/or (2) they exhibit any of the characteristics of hazardous waste identified in Part 261, Subpart C.

Treatment, as defined in 40 CFR 260.10, means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

It should be noted that if any of the aerosol cans are included as part of household waste (i.e., from military housing), those cans are exempt from RCRA Subtitle under Section 261.4(b)(1).

If you have any further questions, you may contact Doreen Sterling of my staff at 202-475-6775.

Sincerely

Original Document signed

Sylvia K Lowrance, Director  
Office of Solid Waste

Enclosures

**ATTACHMENT 23**

PPC 9443.1984(10)

SMALL ARMS AMMUNITION REACTIVITY, OFF SPECIFICATION

30 NOV 1984

MEMORANDUM

SUBJECT: Classification of Small Arms Ammunition  
With Respect to Reactivity

FROM: John H. Skinner, Director  
Office of Solid Waste (WH-562)

TO: David Wagoner, Director  
Air & Waste Management Division  
Region VIII

Recently, a question arose as to the status under RCRA of off-specification small arms ammunition (ball or sporting ammunition of calibers up to and including 0.50) intended for disposal. The issue concerned whether such wastes are "reactive wastes" within the meaning of 40 CFR 261.23(a)(6) and, therefore, subject to RCRA hazardous waste requirements. Because the ammunition contains an ignition source that may be shock and heat sensitive and is designed to generate high pressure during use, it had been our opinion that it is probably "reactive." However, on the basis of information that was received from the Remington Arms Company and the Army, we now conclude that such materials are no "reactive" within the meaning of 40 CFR 261.23(a)(6).

Section 261.23 (a)(6) of Title 40 provides that a solid waste which is "capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement" is "reactive." As discussed in the May 19, 1980, preamble to 40 CFR 261.23, shock and thermal instability are important elements of this definition. While presently there is no Agency guidance regarding these criteria, the Remington Arms Company of Independence, Missouri, and the U.S. Army have provided information which addresses both of these factors.

Remington Arms Company submitted details on the effects of heat and impact to small arms ammunition. There was no explosion

when a box of ammunition was set afire. Small arms, when subjected to the SAAMI (Sporting Arms and Ammunition Manufacturer's Institute) Impact Test, showed no evidence of mass propagation or explosion.

The Department of the Army has a rigorous safety and hazard testing program on all munition items. The tests, which include drop tests from 5, 7, and 40 feet to simulate handling errors and "heating under confinement," 160°F for 48 hours, also showed no evidence of detonation or explosion with respect to small arms ammunition. The tests were performed on both the individual munition and a package containing a prescribed number of items.

As noted above, we feel that results from these tests show that off-specification small caliber ammunition up to and including 0.50 is not "reactive" within the meaning of 40 CFR §261.23(a)(6). We, therefore, believe that the disposal of such ammunition is not subject to Subtitle C hazardous waste requirements.

We appreciate your cooperation. If you have any questions regarding the matter, please call David Friedman or Florence Richardson at FTS 382-4770.

cc: Air & Waste Management Divisions Directors  
Regions I-VI and VIII-X

**ATTACHMENT 24**



B A C K G R O U N D     D O C U M E N T

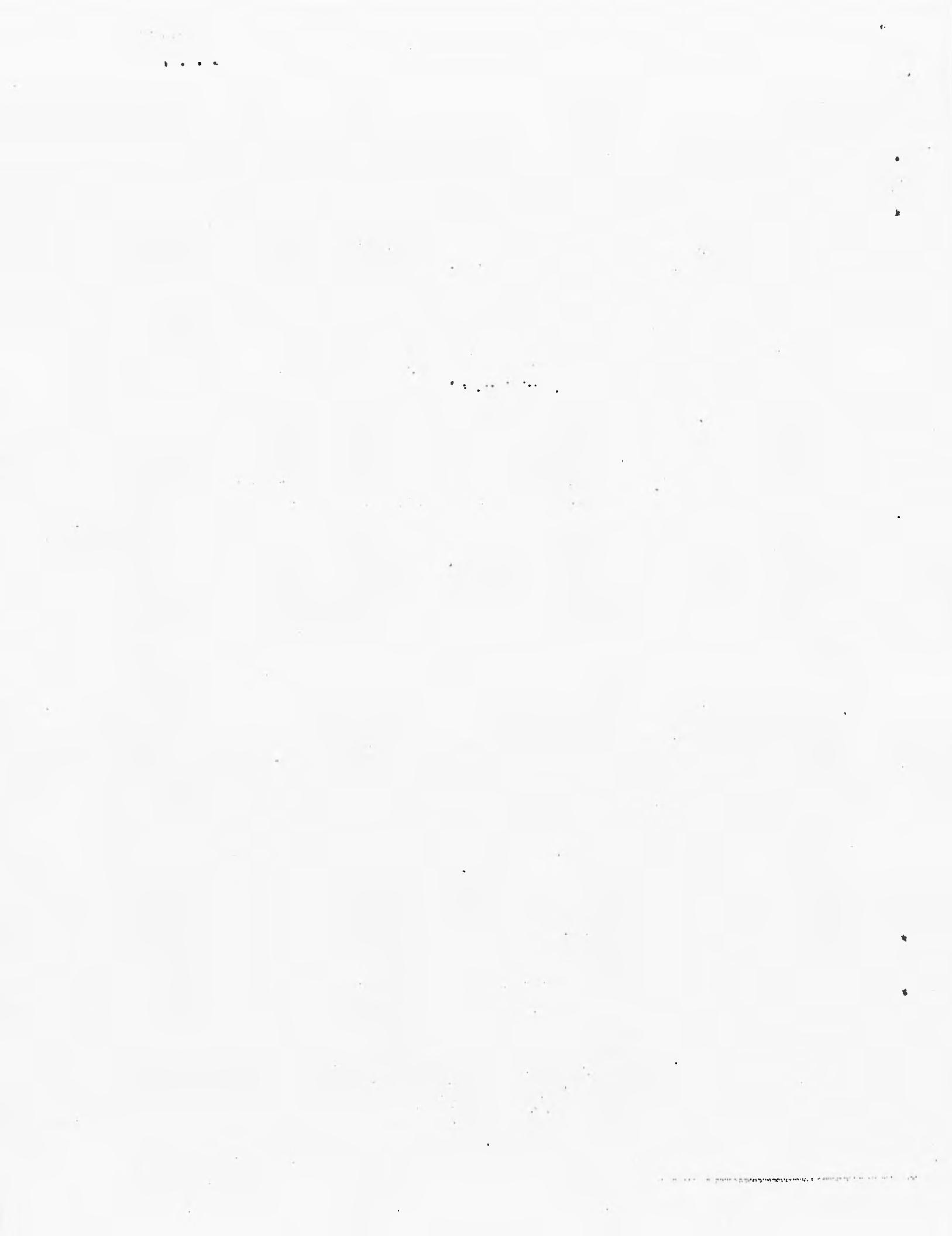
IDENTIFICATION AND LISTING OF HAZARDOUS WASTE  
UNDER RCRA, SUBTITLE C, SECTION 3001

Reactivity Characteristic  
(40 CFR 261.23)

This document (ms. 1941.25) provides background information  
and support for EPA's hazardous waste regulations

U.S. ENVIRONMENTAL PROTECTION AGENCY  
May 1980

REPRODUCED BY  
U.S. DEPARTMENT OF COMMERCE  
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| 16. Abstract (Limit: 200 words) This document is one of a series providing support for regulations issued by the U.S. Environmental Protection Agency (EPA) under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The regulations represent the initial effort for nationwide control of hazardous waste from point of generation, through transportation, treatment, and storage, to point of ultimate disposal. |                     |  |
| This document explains how EPA identified reactivity as a hazardous waste characteristic.  |                     |  |
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| <p>b. Identifiers/Open-Ended Terms</p> <p>Resource Conservation Recovery Act regulations<br/>Hazardous waste characteristics<br/>Reactive hazardous waste</p>  |                     |  |
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See Instructions on Reverse

OPTIONAL FORM 272 (4-77)  
 (Formerly NTIS-35)  
 Department of Commerce



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## I. Introduction

Subtitle C of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 creates a comprehensive "cradle-to-grave" management control system for the disposal of hazardous waste designed to protect the public health and the environment from the improper disposal of such waste. Section 3001 of that Subtitle requires EPA to identify the characteristics of and list hazardous wastes. Wastes identified or listed as hazardous will be included in the management control system created by Sections 3002-3005 and 3010. Wastes not identified or listed will be subject to the requirements for non-hazardous waste imposed by the States under Subtitle D. The Agency has determined that reactivity is a hazardous characteristic because improperly managed reactive wastes (i.e., explosives, etc.) pose a substantial present or potential danger to human health and the environment. The purpose of this document is to explain the Agency's definition of reactive wastes, to discuss the comments received on the proposed definition of reactive waste (43 FR 58956, December 18, 1978) and the changes subsequently made.

## II. Proposed Regulation

Reactive waste. (1) Definition - A solid waste is a hazardous waste if a representative sample of the waste:

(i) Is normally unstable and readily undergoes violent chemical change without detonating; reacts violently with water, forms potentially explosive mixtures with water, or generates toxic gases, vapors, or fumes when mixed with water;

or is a cyanide or sulfide bearing waste which can generate toxic gases, vapors, or fumes when exposed to mild acidic or basic conditions.

(ii) Is capable of detonation or explosive reaction but requires a strong initiating source or which must be heated under confinement before initiation can take place, or which reacts explosively with water.

(iii) Is readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.

(iv) Is a forbidden explosive as defined in 49 CFR 173.51, a Class A explosive as defined in 49 CFR 173.53, or a Class B explosive as defined in 49 CFR 173.58.

NOTE--Such waste includes pyrophoric substances, explosives, autopolymerization material and oxidizing agents. If it is not apparent whether a waste is a hazardous waste using this description, then the methods cited below or equivalent methods can be used to determine if the waste is hazardous waste.

Identification method. (1) Thermally unstable waste can be identified using the Explosion Temperature Test cited in Appendix II of this Subpart (waste for which explosion, ignition, or decomposition occurs at 125°C after 5 minutes is classed as hazardous waste).

(i) Waste unstable to mechanical shock can be identified using the Bureau of Explosives impact apparatus and the tests cited in 49 CFR 173.53 (b), (c), (d), or (f), as appropriate.

### III. Rationale for Proposed Regulation

#### A. Rationale for proposing a reactivity characteristic

Reactivity was chosen as a characteristic of hazardous waste because improperly managed reactive wastes present a danger to human health and the environment. By definition, reactive wastes are those which are capable of violently generating heat and pressure, reacting vigorously with air or water, reacting with water to generate toxic fumes, etc. The dangers which these wastes pose to transporters, waste disposal personnel, and the public are thus for the most part obvious. In the past, there have been a number of incidents of damage to persons or property which have resulted from the improper management of reactive wastes. Some of these damage incidents are listed and discussed in Appendix I.

Because of their acknowledged danger, reactive materials are often controlled by federal and state regulations and suggestions for their safe use or management are often published by public or private organizations. Some of these federal and state regulations and the guidelines for reactive materials prescribed by the National Fire Protection Association (NFPA) are listed and discussed in Appendix II.

#### B. Rationale for proposed reactivity definition

Reactive substances can be described as those which:

- 1) autopolymerize
- 2) are unstable with respect to heat or shock
- 3) are explosive

- 4) are strong oxidizers
- 5) react vigorously with air or water
- 6) react with water to generate toxic fumes

As can be seen from this description, the term "reactivity" encompasses a diverse and somewhat loosely conjoined class of physical properties or effects. These effects are not mutually exclusive and a particular substance might exhibit several of the properties mentioned above. For instance, certain peroxides would fall into four of the above six categories. Additionally, these categories overlap not only with each other, but also with the other characteristics. For example, the difference between flammability (conflagration) and explosiveness (deflagration) is only one of degree -- an illustration of the fact that the properties embraced by the term "reactivity" are, like the term "reactivity" itself, relative properties which have meaning only in a relative sense.

The Agency has attempted where possible to define hazardous waste characteristics in terms of specific, numerically quantified properties measurable by standardized and available testing protocols. This has proven difficult in the case of reactive wastes. The first problem with constructing a numerically quantified definition of reactive wastes arises from the fact that the term "reactivity" embraces a wide variety of different (though overlapping) effects, each of which can be triggered by an equally wide variety of initiating conditions or forces. It would be cumbersome, if not completely impractical, to construct a numerically

quantified definition which included all these different effects and their potential initiating forces. The second problem arises from the fact, as noted above, that the properties embraced by the term reactivity are relative properties. The determination that something "reacts vigorously with air or water" or is "unstable with respect to heat or shock" is a relative determination, not an absolute one. The effects being measured proceed along a continuum. Thus, it is difficult to draw the line at any particular point.

These problems are reflected in the testing methods which might be used to identify reactive substances. These methods suffer from the following generic deficiencies:

1. The available tests are too specific and do not reflect the wide variety of waste management conditions.

The available tests are used to determine how a specific aspect or manifestation of waste reactivity behaves under a special and specific type of stress. For example, DTA (Differential Thermal Analysis) measures how the rate of temperature rise of the waste (one specific aspect of waste reactivity) correlates with the slow input of thermal energy (one special and specific type of stress). This would not indicate how the waste reacts to mechanical shock (a drop test would be necessary to determine that), electrical shock, whether the waste is a strong oxidizer, or even what is producing the rate of temperature change (pressure buildup, toxic or nontoxic fumes, heat of mixing, etc.). The information derived from the available tests; then, is too specialized

and does not reflect the wide variety of stresses and initiating forces likely to be found in a disposal environment.

2. Reactivity of a sample may not reflect reactivity of the whole waste:

In the case of wastes which are thermally unstable, the reactivity of the sample may not adequately reflect the reactivity of the whole waste. The kinetics of reaction are not only a function of the available initiating sources and ambient temperature, but are also a function of the mass, configuration, geometry, etc. of the sample. For a "runaway" reaction to occur, the system must transcend that steady state where the energy (heat) produced by reaction is equal to the energy transferred to the surroundings from the reacting mass. When this critical temperature is reached, the mass experiences catastrophic self-heating. This heat transfer phenomena is a function of sample size, density, and geometry. As demonstrated in equation 1:<sup>5</sup>

$$Cdt/dt = QVp \exp(-E/RT) + hS(T - T_0) \quad (1)$$

C = mc (m=mass and c = specific heat)

T = Temperature of the material

Q = Heat of decomposition

V = Volume

p = Density

E = Activation energy

R = Gas constant

h = Heat transfer coefficient

S = Surface are of the material

As can be seen from this equation the rate of temperature rise will be affected both by the intensive properties of the waste, such as density, and the extensive properties of the waste, such as surface area and geometry. Since the extensive properties of the sample are likely to be different from the extensive properties of the whole waste, the reactivity of the sample may not reflect the reactivity of the whole waste.

3. The test results are in most cases subjective or not directly applicable.

The ideal test to use in a regulatory program is usually one which requires minimal interpretation. The majority of available reactivity testing methods are not of the "pass-fail" type. Rather, these testing methods usually produce test results which consist of a first order differential plotted against time or against a standard, from which relative reactivity can be assessed. When a test of this sort is run, it is not run to determine "reactivity" per se but rather to elicit information concerning how "fast" a material reacts (i.e. kinetic information) or how vigorously it reacts (thermodynamic information). Thus, the decision as to whether a waste is reactive requires subjective interpretation of the test results.

Additionally, the information derived from such tests may not be directly related to reactivity. For example, the test results might provide information on the activation energy - a useful, but potentially misleading bit of information since it reflects the speed of the reaction rather than the

reaction's effects. The inapplicability of some of the test results emphasizes the indefinite meaning of the term "reactivity", a term which draws its meaning from the context of its use. A chemist might think of a "reactive" substance as one with a small activation energy (the energy difference between the reactive substance's initial and transition states), i.e., one which reacts easily. The Agency, however, unlike the hypothetical chemist, is not just interested in things that react "easily" but also in things which react vigorously. It consequently needs to take into account not just the activation energy of a substance but also the heat of reaction, the molecularity of the reaction and other factors - information which the available tests often do not supply. It is, in other words, not really interested in performing a thermodynamic measurement, but rather in observing if a waste behaves in such a way as to pose a danger under normal handling conditions.

4. The standardized methods that do exist were not developed for waste testing.

Use of the available testing methods on waste materials often results in the application of standardized methods to non-standardized samples and the application of standardized methods to samples with physical consistencies the method was not designed for. If such methods are used, the results might be difficult to interpret with certainty.

The available reactivity testing methods are individually

described and evaluated in Appendix 3\*. As is evident from those specific evaluations and from the preceeding discussion of the generic shortcomings of the available testing methods, none of these "type" methods are suitable for use to unequivocally determine if a waste presents a reactive hazard. For essentially the same reasons, a numerically quantified definition of reactive waste is not feasible. This is not as big a problem as might be thought on initial reflection. Most generators whose wastes are dangerous because they are reactive are well aware of this property of their waste. Reactive wastes present special problems in handling, storage and transprot. Also, reactive wastes are rarely generated from unreactive feed stocks or in processes producing unreactive products or intermediates. Furthermore, the problems posed by reactive wastes appear to be confined to a fairly narrow category of wastes. The damage incidents show that the major problems seem to be the formation of hydrogen sulfide ( $H_2S$ ) from either soluble sulfides or biological degradation of sulfur containing wastes, the formation of hydrogen cyanide (HCN) from soluble cyanides, and the explosion of some

\*These evaluations are taken from "A Second Appraisal of Methods for Estimating Self Reaction Hazards", E. D. Domalski, Report No. DOT/MTB/ORMD-76-6, "Classification of Test Methods for Oxidizing Materials", V.M. Kuchta, A. C. Furno, and A. C. Imof, Bureau of Mines, Report of Investigations 7954 and "Classification of Hazards of Materials-Water Reactive Materials, and Inorganic Peroxides", C. Mason and V. C. Cooper, NTIS No. PB 209-422. The evaluations are slightly modified so as to determine applicability of test methods to waste materials.

"unidentified" waste material. It will thus only be in a rare instance that a generator would be unsure of the reactivity class of the waste, or would be unable to assess whether the waste fits a prose definition, and would require the application of testing protocols to determine the reactivity of this waste. Since the available testing methods are not ideal for identifying those wastes categorized as hazardous due to reactivity, the approach chosen is to prescribe a prose description of reactive waste for self-determination by generators and to list wastes which meet this description and have been identified as reactive.

The prose definition chosen is a paraphrase of the top three of the reactive classes of the National Fire Protection Association (NFPA) reactivity classification system. The other two classes in the NFPA classification scheme are not included since these would include materials which are inert under normal handling conditions. This definition is used because it includes all aspects and types of reactivity which present a danger\* and is already familiar to persons handling reactive materials. The Chemical Manufacturers Association<sup>1</sup> uses this definition to classify reactive wastes in its "Laboratory Waste Disposal Manual". Also, a paraphrase of this classification system is used by the Navy<sup>2</sup> in their hazardous waste disposal guide and is used in other hazardous materials handling guides<sup>3,4</sup> as a classification system.

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\*All wastes which have been identified as having caused damage are identified under this definition as are all commonly defined types of reactivity.

Furthermore, the States of California and Oklahoma use this system to define reactive wastes.

## References

1. "Laboratory Waste Disposal Manual" Chemical Manufacturers Association (1975).
2. "NEPSS Hazardous Waste Disposal Guide", Naval Environmental Protection Support Service (1976).
3. "Handling Guide for Potentially Hazardous Materials", Material Safety Management Inc. (1975).
4. Material Data Safety Sheets.
5. E. J. Domalski, "A Second Appraisal of Methods for Estimating Self-Reaction Hazards", DOT/MTB/OHMO-76/6, G.P.O. (1976).

#### IV. Comments Received on the Proposed Characteristics and the Agency's Response to These Comments

The Agency received approximately forty comment letters addressing reactivity. These letters contained approximately sixty discrete recommendations or comments on the proposed regulation (in some letters more than one point was addressed). Several of the commenters felt that the proposed reactivity definition was adequate and provides desirable flexibility for the generator to use judgement. However, the large majority of comments expressed concern with the Agency's reactivity characteristic. These comments have been categorized by either content or the portion of the regulation addressed.

A discussion of these follows:

A. A large majority of the comments dealt with the asserted lack of specificity and ambiguity of the prose definition.

\* A number of commenters argued that the prose definition employed by the Agency is, as a general matter, too vague and should be replaced by a numerically quantified definition accompanied by appropriate testing protocols. This comment has been fully addressed in Part III above and need not be addressed further here.

\* A number of commenters argued that the inclusion in the definition of wastes which "generate toxic gases, vapors, or fumes when mixed with water" and of "cyanide or sulfide bearing waste[s] which can generate toxic gases, vapors, or fumes when exposed to mild acidic

"or basic conditions" needs to be made more specific. Several of the commenters suggested that a phrase such as "in harmful quantities" be inserted into the proposed regulations as follows: "...or generates toxic gases, vapors, or fumes in harmful quantities when mixed with water"; "or is a cyanide or sulfide bearing waste which can generate toxic gases, vapors, or fumes in harmful quantities when exposed to mild acidic or basic conditions." The comments on the cyanide and sulfide bearing wastes all pointed out that everything contains sulfides and most things contain cyanides (albeit in trace amounts) and many of these can generate minute quantities of hydrogen sulfide or hydrogen cyanide under mildly acidic or basic conditions. The Agency is sympathetic to these concerns, and, in anticipation of such problems, had attempted to make clear in the preamble and background documents that the Agency was leaving the determination of reactivity hazard up to the reasonable judgement of the generator based upon the generator's past experience with the waste. Taking this common sense approach, such material as soil or flyash with sulfides contamination (examples of sulfide and cyanide bearing wastes supplied by the commenters) would clearly not meet the reactivity definition. Despite this, the point made by the commenters is certainly valid. Therefore, so that there will be no confusion, the Agency has

changed the final regulation to make it more specific, as follows: "...or generates toxic gases, vapors or fumes in quantities sufficient to present a danger to public health or the environment when mixed with water; or is a cyanide or sulfide bearing waste which can generate toxic gases, vapors or fumes in quantities sufficient to present a danger to public health or the environment when exposed..."

This would certainly better reflect our regulatory intent.

- A number of commenters advocated that the Agency specify what is meant by mildly acidic or basic conditions. One commenter specified a pH range (5 to 9), but offered no rationale as to why this particular range should be used. Since a substantial percentage of the commenters found the phrase "mildly acidic or basic" to be rather nebulous, the Agency has decided that a specific pH range should be specified. The pH range chosen is that which is considered non-hazardous by the corrosivity characteristic ( $2 < \text{pH} < 12.5$ ). This range was chosen because any liquid outside the range is hazardous and requires management within the Subtitle C regulations. Only liquid wastes inside this range can be landfilled without regard to the strictures on compatibility imposed by the Subtitle C regulations and co-disposed with wastes containing soluble cyanides or sulfides. These are then the most stringent pH conditions which a waste could be subjected to outside of a Subtitle C facility. (Natural waters are unlikely to be outside this pH range).

- Several commenters suggested that the definition of cyanide bearing waste should distinguish between "free cyanide" and ferro cyanide" since the latter would not be available to generate hydrogen cyanide under mild acidic or basic conditions. The Agency believes that such a clarification is not necessary. If the cyanide is unavailable under the specified acidic or basic conditions then toxic hydrogen cyanide fumes cannot be generated and the wastes containing these unavailable cyanides are not reactive. To specify these as exemptions would be redundant and by implication might lead generators to conclude that other unavailable sulfides or cyanides NOT specifically exempted, do meet the reactivity characteristic.
- A number of commenters advocated specifying the concentration of sulfide or cyanide needed to make cyanide or sulfide bearing wastes hazardous. As explained above, the identity of wastes which generate toxic gases under the conditions specified in the definition should be obvious to the generator and thus, this level of sophistication is unnecessary.
- One commenter suggested that the Agency specify a rate of evolution of toxic gas, but included no suggestions as to how to do so. The Agency is unsure of how a laboratory test method measuring gas evolution rate

could be developed which could then be meaningfully related to field conditions. Therefore, an evolution rate of toxic gas will not be included in the final regulations.

\* One commenter argued that sulfides and cyanides should not be singled out in the regulations and further stated that all other potential toxic fume generators be included or, alternatively, that no toxic fume generators be included. The Agency disagrees. According to information which the Agency has in its possession (see Appendix I), the primary wastes implicated in the generation of toxic gas are sulfides and cyanides. Thus, the Agency would be remiss if it did not specify these types of wastes. If others are identified, they will be included also.

B. A number of commenters argued that the test protocols proposed in Section 250.13 (c)(2) of the regulations were expensive, unreliable and not specific enough. Additionally, several other commenters had problems with specific test protocols. (For instance, some commenters argued that the 125°C temperature adopted for the Explosion Temperature Test was not a reasonable temperature and that decomposition, as used in this test, needs to be defined.)

As a result of some preliminary work undertaken by the Agency on the Explosion Temperature Test\* and after reviewing

\*Evaluation of Solid Waste Extraction Procedures and Various Hazard Identification Tests (Final Report)", NUS Corporation, September, 1979, (see Appendix IV).

the comments received on these test protocols\* (and in view of the generic problems with such tests, discussed above and in Appendix III), the Agency has decided to remove the test protocols from §261.23 of the regulations. The Agency agrees in general that they are unsuitable in defining a "reactive" waste for RCRA regulatory purposes. The Agency has accordingly removed the designated test protocols from the regulations except to the extent that the Department of Transportation's definition of Class A explosives requires use of the shock instability test. As a result of this decision, the Agency does not believe it is necessary to discuss the individual concerns on the various test protocols.

C. A number of commenters argued that only under landfill conditions will a waste be subjected to strong initiating sources or heated under confinement. Therefore, they stated that since no landfilling of explosive waste is permitted, these conditions will never occur and Section 250.13(c)(1)(ii) is unnecessary.

This argument is completely circular. If Section 250.13(c)(1)(ii) were removed from the regulations, explosive wastes would not be considered hazardous and could be disposed of in a sanitary landfill, thus subjecting the wastes to the very conditions which the commenters contend will cause the waste to explode. In any event, the Agency does not agree that a landfill is the only place in which strong initiating forces

\*Comments were received from the public on the proposed reactivity test protocols both during the 90-day comment period on the proposed §3001 regulations (43 FR 58956) and in response to the solicitation of comments on the NUS report (Evaluation of Solid Waste Extraction Procedures and Various Hazard Identification Tests) which was noticed in the Federal Register on December 28, 1979 (44 FR 76827-76828)

or heating under pressure can occur. Pressure increase can be caused by confinement (e.g., a drum) together with temperature increase (e.g., caused by mixing) or gas generation (e.g., desolubilization of gases or decomposition into gases).

D. A number of commenters advocated exempting emergency situations (i.e., homemade bombs) from coverage of RCRA so that emergency teams can dispose of these explosive materials as expeditiously as possible without delay (i.e., without requiring a manifest, etc.).

The regulation already makes accommodation for cases of imminent hazard in §263.30. Thus, emergency handling of explosive wastes would be exempted by this section.

E. Other Comments

\* A number of commenters advocated that all the characteristics be made as flexible as the reactivity characteristic.

The Agency disagrees with these comments; the broad meaning and generic character of the reactivity "universe" requires a flexible characteristic. The Agency would have preferred to define reactivity by specific test protocols. However, this is not possible. The other characteristics, (except ignitable solids) can be delineated or gauged by measurement of one (or a few) specific chemical/physical properties; therefore, the Agency will continue to define the ignitable, corrosive, and toxicity characteristic as proposed.

• One commenter argued that just because a waste may undergo a violent chemical change with another waste is no reason to consider a waste hazardous. To illustrate this point, the commenter pointed out that an acid and base when mixed will undergo violent chemical change, but that such mixing (neutralization) is a necessary part of many treatment systems and should not be prohibited.

The Agency believes this commenter to be under a misapprehension about the scope of the reactivity definition. The definition of reactivity refers to wastes which undergo violent change in an uncontrolled manner either by themselves, or when mixed with water. Therefore, the example of neutralization given by the commenter is inappropriate, in as much as that example involves the mixing of wastes. Furthermore, the Agency does not believe that the example given by the commenter is a fair representation of the hazards posed by wastes capable of undergoing a violent chemical change. The example given involves the controlled interaction between two wastes which is a treatment technique and thus does not reflect the hazards presented by uncontrolled violent chemical change characteristic of waste management situations.

• One commenter suggested that the definition of reactive waste be subdivided into sections which might be later

indexed into a compatibility chart.

The primary purpose of Section 3001 is to identify hazardous wastes, and not to dictate management techniques. Section 3004 will address the various management techniques including incompatible wastes (see §265.17 of the regulations). An appendix to the regulations (Appendix 5 in Part 265) is provided with just such information.

\* One commenter suggested that the Agency allow a generator to use any test that is believed appropriate for determining reactivity. Similarly, one commenter suggested that Appendix III to this background document be removed because it might discourage use of a suitable test.

This comment must be evaluated in light of the Agency's decision not to prescribe any tests for measuring reactivity. Ordinarily, when the Agency prescribes a specific test for measuring a characteristic, the generator is free to employ a different test if he can demonstrate, in accordance with the equivalency procedures set forth in Subpart E, that his test is equivalent to the Agency-prescribed test. Since the Agency has elected not to prescribe any test protocols for measuring reactivity, the question of equivalent test methods is largely mooted: test results are no longer determinative of whether a waste is reactive and there is nothing against which to measure equivalency.

This is not to say, however, that the use of tests by the generators is precluded. The generator is free to conduct any tests which aid him in assessing whether his waste fits within the prose definition of reactivity. However, the Agency is not bound in any way by these tests and will make its assessment of whether a waste is reactive by reference to the prose definition.

If a generator devises a test method which he believes adequately measures the reactivity of a waste, he should submit that test method to the Agency for evaluation.

One commenter suggested that the Agency address reactivity over time in the definition since a material may undergo physical and chemical changes as it ages and become extremely reactive, whereas it might not be reactive when first generated.

The Agency agrees with the commenter that some materials, such as certain ethers, can become more reactive with time. However, the Agency has no information (such as damage incidents) concerning any wastes which might present this type of problem. Additionally, the Agency is not aware of any testing method by which such wastes might be identified. Therefore, the final regulation will not address reactivity over time per se; as these wastes are identified by the Agency they will be listed in Subpart D of Part 261 of the regulations.

\* One commenter objected to the Agency defining as reactive those wastes which are capable of detonation or explosive reaction if subjected to a strong initiating source or heated under confinement. The commenter asserted that many inert, non-reactive materials, including tap water, can be triggered to detonate or explode under confinement when subjected to strong, heat, pressure, or a combination of these and other initiating sources.

The Agency disagrees with this commenter and takes specific issue with the assertion that many relatively inert substances could be made to explode when subjected to extreme heat and pressure. In any event, even if relatively inert substances could be made to explode when subjected to strong heat and pressure, these substances would not be considered reactive under the proposed definition. The Agency is only concerned with substances capable of exploding under reasonable confinement conditions -- i.e., those confinement conditions likely to be encountered in disposal environments.

#### V. Promulgated Regulations

As a result of EPA's review of the comments regarding the reactivity characteristic, EPA is promulgating a reactivity characteristic which significantly differs from the proposed regulations in two aspects: the thermal instability and shock instability test protocols cited in the proposed regulation has been removed and the section relative to generation of toxic gas, hydrogen cyanide and hydrogen sulfide has been

made more specific. The thermal instability test protocol was removed because the Agency determined that its interpretation was too subjective for use in a regulatory program\*. (See Appendix IV).

§261.23 Characteristic of reactivity

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

- (1) It is normally unstable and readily undergoes violent change without detonating.
- (2) It reacts violently with water.
- (3) It forms potentially explosive mixtures with water.
- (4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present danger to human health or the environment.
- (5) It is a cyanide or sulfide bearing waste which, when exposed to conditions of pH between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present danger to human health or the environment.
- (6) It is capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement.
- (7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

\*"Evaluation of Solid Waste Extraction Procedure and Various Hazard Identification Tests", (Final Report), NUS Corporation, September, 1979, (Appendix IV)

(8) It is a forbidden explosive as defined in 49 CFR 173.51 or a Class A explosive as defined in 49 CFR 173.53, or a Class B explosive as defined in 49 CFR 173.88.

(b) A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number D003.

**ATTACHMENT 25**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

MAY 19 1997

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

T.L. Nebrich, Jr.  
Technical Director  
Waste Technology Services, Inc.  
640 Park Place,  
Niagara Falls, New York, 14301

Dear Mr. Nebrich:

Thank you for your letter of March 5, 1997 in which you request a clarification of the definition of the characteristic of reactivity in 40 CFR 261.23(a)(6) as it pertains to aerosol cans.

Over the past several years we have received numerous questions concerning the regulatory status of used aerosol cans under the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations. We are not at this time able to make a categorical determination as to whether various types of cans that may have contained a wide range of products exhibit the characteristic of reactivity. It remains the responsibility of the generator of any particular waste to make this determination (see 40 CFR 262.11). However, a steel aerosol can that does not contain a significant amount of liquid (e.g., a can that has been punctured and drained) would meet the definition of scrap metal (40 CFR 261.1(c)(6)), and, if it is to be recycled, would be exempt from regulation under 40 CFR 261.6 (a)(3)(iv). Scrap metal that is recycled is exempt from RCRA regulation under this provision even if it is hazardous waste, so generators need not make a hazardous waste determination. Scrap metal that is not recycled, however, is subject to the hazardous waste regulations if it is hazardous, so generators must make a hazardous waste determination.

I hope this information is helpful to you. If you have any further questions, please call Anna Tschursin of my staff at (703) 308-8805.

Sincerely yours,

Elizabeth A. Cotsworth, Acting Director  
Office of Solid Waste

RO 14235

**ATTACHMENT 26**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JULY 13, 1995

Ms. Lynn L. Bergeson  
Weinberg, Sergeson, and Neuman  
1300 Eye Street, N.W.  
Suite 1000 West  
Washington, D.C. 20005

Dear Ms. Bergeson:

Thank you for your letter of October 14, 1994 requesting clarification of the regulatory requirements under the Resource Conservation and Recovery Act (RCRA) applicable to the collection, transportation and recycling of spent antifreeze generated at automobile service centers, in particular, at what point spent antifreeze becomes a solid waste.

This request was posed in order in the context of a spent antifreeze recycling program, wherein spent antifreeze generated from radiator flushes done at automobile service centers (specifically, Valvoline Instant Oil Change stores) is collected, stored and sent for recycling at Union Carbide's Glycol Recovery Unit in Institute, West Virginia. The specific questions you raised relate to the practical difficulties of generating and characterizing spent antifreeze, where one radiator flush may be hazardous and the next flush nonhazardous. Please forgive the delay in responding to your request.

The following discussion of the RCRA regulations applicable to the spent antifreeze recycling program that your clients, Union Carbide Corporation and Ecogard, Inc., plan to establish comes after careful consideration of this recycling program and extensive phone conversations between Tom Ovenden and my staff.

At this time, EPA has not determined what point of generation will be applied to "like wastes" (wastes of a similar composition) through any future Agency rulemakings. As you know, the Agency has solicited comment in its Land Disposal Restriction (LDR) Phase III proposed rule on different options to designating the point of generation for like-wastes. See 60 FR 11702, 11715-11717 (March 2, 1995). The three specific options presented in the preamble would view the collection of many streams as a single waste for purposes of identifying a point of generation.

As an alternative to designating a point of collection of many streams, the Agency could establish a point of generation for like-wastes upstream of the collection point of like-wastes (e.g., an automotive radiator in the case of spent anti-freeze). However, at least with respect to anti-freeze, we are not certain that this represents the most practical way to approach antifreeze management when anti-freeze is routinely aggregated and collected in drums and tanks and the characteristic of the antifreeze in those containers is the best indicator of potential environmental risks if the material were released to the environment.

Given the facts of the situation, we also realize that it would be impractical to require each individual radiator flush to be tested for a hazardous characteristic. We also realize that assuming that each radiator flush is characteristically hazardous may limit the volume of spent antifreeze that automobile service centers will store and this make available for recycling and, ultimately, may impact on the cost-effectiveness of the overall spent antifreeze recycling program.

Bearing this in mind, even if the Agency were to determine that the point of generation should be at the radiator, we believe that it would be appropriate for a generator to rely on "knowledge" of the waste (as per 40 CFR 262.11(c) (2)) based on studies done to characterize the frequency of "hazardous" spent antifreeze generated (relative to the generation of "nonhazardous" spent antifreeze), in order to characterize the total volume of hazardous waste generated. Study data may also be used to characterize the consolidated volume of spent antifreeze. As you cite in your letter, data collected by various parties indicate that up to 40 % of the spent antifreeze flushed from radiators may be hazardous, primarily due to lead. Thus, the Agency believes that, absent facility-specific data to the contrary, it would be appropriate for a spent antifreeze generator to characterize the total consolidated volume of spent antifreeze generated as being 40% hazardous and 60% nonhazardous. Note, however, that facility-specific data gathered by spent antifreeze generators or authorized regulating agencies could override this 40% presumption and show higher or lower percentages of hazardous wastes.

This use of "knowledge" of the wastestreams, as applied to the total volume of spent antifreeze generated, would be an appropriate alternative to testing the spent antifreeze. And, just to clarify, this approach would be appropriate for determining the volume of hazardous waste generated for the purposes of being eligible for special regulatory provisions for small quantity generators.

We agree with you that commingling "40% hazardous" spent antifreeze with "60% nonhazardous" spent antifreeze in a common tank or container by the generator prior to the recycling of the spent antifreeze (and the subsequent treatment and disposal of the residues from recycling in compliance with Part 268) would not constitute impermissible dilution under 40 CFR 268.3. Given that this mixing would be done to facilitate proper treatment – recycling and subsequent treatment which destroys, removes or immobilizes hazardous constituents before land disposal – the dilution would not be impermissible.

In response to your inquiries regarding the application of the dilution prohibition to the burning of metal-bearing wastes and the burning of the still bottom residues of the spent antifreeze recycling process, the Agency would consider the still bottoms to be newly generated wastes. Assuming that the

still bottoms were hazardous, they could appropriately be burned for energy recovery in a regulated unit provided that they have sufficient BTU value. Therefore, the Agency would not consider the burning of the metal-bearing/high BTU bottoms to be impermissible dilution.

As for your inquiries regarding the applicable notifications and certifications for the purposes of the land disposal restrictions, insofar as the generator mixes hazardous and nonhazardous spent antifreeze such that the resultant mixture is no longer hazardous and meets the applicable treatment standards, the generator must comply with the notification and certification requirements of section 268.9.

In summary, if the Agency were to determine the radiator to be the point of generation for spent anti-freeze, we believe that one possible scenario for the spent antifreeze program is where an automobile service center could commingle each individual radiator flush in a tank or container, assuming (absent facility-specific data to the contrary) for the purposes of waste characterization and quantity of hazardous waste generated that 40% of the total volume generated in a month is hazardous (D008). The generator could also consider the accumulated total volume of spent antifreeze to be nonhazardous.

The generator would comply with the one-time notification and certification requirements of section 268.9(d). And, because the commingled mixture of the spent antifreeze is no longer hazardous, no hazardous waste manifest would be required.

The recycler receiving the nonhazardous spent antifreeze would not require a hazardous waste storage permit or be subject to other hazardous waste management requirements for this wastestream.

The recycler should characterize any residues from the distillation/recycling of spent anti-freeze to determine if they are hazardous wastes. If any of the residuals are hazardous, the recycler must comply with the applicable land disposal restrictions requirements of Part 268 (e.g., notification and certification).

Assuming, as discussed in your letter, that the residues are hazardous metal-bearing/high BTU wastes, these residues may be transported (with a hazardous waste manifest, and land disposal restrictions notification) to a permitted hazardous waste combustion unit for treatment. The final treatment facility would certify compliance with the applicable treatment standards prior to disposal of the residues. You should note, however, that this would be pursuant to the Federal regulatory program. As you know, States that are authorized for RCRA program may have more stringent requirements.

Thank you for your interest in the development of a recycling program to manage a common, and somewhat problematic, wastestream in an environmentally sound manner.

Sincerely,

Michael Shapiro, Director  
Office of Solid Waste

**ATTACHMENT 27**

**Strategy for Addressing the Retail Sector under RCRA's Regulatory Framework**  
**September 12, 2016**

**I. Introduction**

**A. Background**

Regulation of hazardous waste generated by the retail sector under the federal Resource Conservation and Recovery Act (RCRA) presents unique challenges that are not found in more “traditional” RCRA-regulated industries. The retail sector as a whole handles a very large number of diverse products<sup>1</sup>, which change over time and may, in many instances, become regulated as hazardous waste under RCRA when discarded<sup>2</sup>. As a result, retailers are required to make hazardous waste determinations for a variety of products at stores located across the country.

Additionally, the reverse distribution<sup>3</sup> process where retail stores generally send unused goods to reverse logistics centers and rely upon arrangements with suppliers/vendors<sup>4</sup> to determine the ultimate disposition of these goods is a well-established business practice in the retail sector. Nevertheless, how the reverse distribution processes is regulated, or should be regulated, under RCRA has resulted in a number of questions from both retailers and regulators. This issue becomes more complicated for retail chains with store locations in many different states, where states have taken various positions on how RCRA regulations apply.

In 2008, the U.S. Environmental Protection Agency (EPA or Agency) began a review of how RCRA hazardous waste regulations apply to the retail sector in order to better understand challenges in complying with RCRA regulations. EPA’s review consisted of discussions with various members of the retail community and states through meetings, conferences and site visits.

On January 11, 2011, President Obama signed Executive Order (EO) 13563 regarding the retrospective review of regulations, which required federal agencies such as EPA to develop a plan to “...determine whether any such regulations should be modified, streamlined, expanded, or repealed so as to make the agency’s regulatory program more effective or less burdensome in achieving the regulatory objectives.”

EPA published a Notice of Data Availability (NODA) for the Retail Sector, dated February 14, 2014 (79 FR 8926) as part of the Agency’s continuing efforts to better understand concerns from all stakeholders regarding RCRA’s applicability to the retail sector, as well as to obtain information and feedback on issues affecting the retail sector. The NODA was also intended to satisfy EPA’s commitment under this EO to solicit public comment on issues associated with the retail sector. Additional information regarding the NODA is presented in Section II.A.

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<sup>1</sup> Although the terms “products” and “goods” are used and generally described at times as “items” or “materials” in this document, use of these terms is not intended to indicate if or when such items/materials become wastes either at the store or during the reverse distribution process.

<sup>2</sup> The term discarded is defined at 40 CFR 261.2(a)(2). When a material, such as a retail item, is discarded is a key question because, once a decision to discard is made, the material becomes a solid waste and the person making this decision is a generator of solid waste. At such point and time, the generator would be required to make a hazardous waste determination.

<sup>3</sup> EPA is aware that the term “reverse distribution” is often used for pharmaceuticals, whereas “reverse logistics” is used for non-pharmaceuticals; however, the former term appears throughout this document and is intended to apply to all retail items under this process.

<sup>4</sup> The terms “supplier” and “vendor” (latter more commonly used in the retail industry) appear more often in this document, as compared to “manufacturer,” since it is more likely the flow of goods/products occurs between retailers and suppliers/vendors (or agents thereof), although suppliers themselves may also be manufacturers or product formulators.

EPA's ongoing outreach efforts, combined with the comments received on the NODA, have improved the Agency's understanding of the challenges arising when managing unused/intact consumer goods that have become unsalable at retail stores and are moving through the reverse distribution system.

## B. Objective

EPA's considerable engagement with the retail sector and regulators to date has resulted in development of this strategy, which lays out a cohesive plan to address the unique challenges faced by the retail sector in complying with RCRA regulations while reducing burden and protecting human health and the environment.

In crafting this strategy, EPA recognizes that RCRA regulations, which were developed primarily for manufacturing settings, are not necessarily the best fit for the retail sector. EPA is also aware that the Agency has, in the past, made efforts to tailor RCRA regulations to address certain types of unique waste management circumstances (e.g., used oil, universal wastes, spent lead-acid batteries, academic laboratory waste).

EPA further recognizes that there are occasions when unused/intact consumer goods, including customer returns, cannot be sold by the original retailer for a variety of reasons such as mandatory or voluntary recalls, seasonal changes, overstock and expired shelf-life.

Finally, the Agency is taking into account retail sector practices already in place, such as the reverse distribution process, to promote sustainability by ensuring that retail items remain marketable as commodities for donation or liquidation<sup>5</sup>, thus reducing the amount of waste generated and encouraging recycling of wastes that are generated, as opposed to being disposed as solid or hazardous waste.<sup>6</sup>

With this in mind, our strategy consists of a three-pronged approach, which is further discussed in Sections III and IV of this document:

1. Issue Agency policy, guidance and rulemaking to ensure a better fit between RCRA regulations and the retail sector.
2. Research retail hazardous waste management practices and related issues in the area of reverse distribution, universal waste and other challenges.
3. Using the results of our evaluation and research, identify additional approaches to address outstanding RCRA retail sector issues if needed.

## II. Identification of Retail Sector Issues

### A. Retail NODA

The objectives of the 2014 Retail NODA were to share information EPA had collected and, more importantly, to obtain additional information that would allow the Agency to better understand and address issues encountered by industry and regulators with respect to the application of RCRA regulations, guidance and policy to the retail sector.

In the NODA, EPA requested comment on a series of topics related to retail operations, waste management practices and management of materials that may become hazardous waste when discarded. This specifically included requests for information regarding aerosol cans (e.g., quantity generated, classification and management

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<sup>5</sup> The term "liquidation" (also known as salvage) is used in this document to describe sale of products on the secondary market for use by consumers.

<sup>6</sup> Routine maintenance activities and cleanup of spilled materials, as well as the occurrence of damaged/leaking products no longer considered commodities and "unknowns" (item contents cannot be identified), also result in waste generation.

options, including handling as universal waste), since aerosol cans comprise a large percentage of the retail sector's hazardous waste stream. The NODA comment period closed on May 30, 2014.

EPA received comments from 44 stakeholders, with comments consisting of feedback from: (1) companies consisting primarily of retailers [nine commenters]; (2) industry/trade Associations [nine commenters]; (3) government and related organizations [seven commenters]; (4) recyclers [three commenters]; (5) waste management and treatment, storage and disposal facilities [three commenters]; (6) law firms [three commenters]; (7) reverse logistics provider [one commenter] and (8) anonymous [nine commenters]. The NODA and supporting documents, along with comments on the NODA, are available at <http://www.epa.gov/hwgenerators/hazardous-waste-management-and-retail-sector>.

## B. Summary of Comments on Retail NODA

As part of developing this strategy, EPA has reviewed all NODA comments to identify stakeholder issues/concerns, including suggestions on how to better address the retail sector under RCRA. Feedback from NODA commenters reinforced EPA's understanding that the retail sector differs from the industrial/manufacturing sector in the following key respects:

- Large number of stores in many locations handling consumer goods that, in many situations, could become hazardous waste upon discard
- Numerous varieties of goods, which are generally manufactured by someone else and whose ingredients are often not fully known, make hazardous waste determinations difficult
- Unpredictable quantity of waste generation due to episodic generation (e.g., recalls and customer returns)
- Hazardous waste training at the store level is difficult due to high employee turnover
- Use of the reverse distribution process to manage unsalable products – including those that become hazardous waste when discarded

EPA grouped suggestions from NODA commenters into the following major categories (approximate percentage of commenters suggesting a particular approach is shown in parentheses)<sup>7</sup>:

- Address Pharmaceuticals (42%)
  - Remove P-listing for nicotine-containing products (23%)
  - Manage as Universal Wastes (17%)
- Endorse Reverse Distribution Retail Paradigm – encompasses point of generation and waste determination issues (40%)
  - Exclude Retail Goods Managed under the Reverse Distribution Process from the Definition of Solid Waste (15%)
- Expand Universal Waste Regulations to Other Waste Categories
  - Aerosol Cans (35%)
  - Pesticides (19%)
  - Electronics (17%)
  - All Retail Goods<sup>8</sup> (14%)
- Provide Flexibility for Episodic Generation and Hazardous Waste Quantity Determinations (19%)
- Exclude Retail Goods as Household Hazardous Waste/Expand "Household Hazardous Waste" Exemption (10%)
- Revise and Update Satellite Accumulation Area Requirements (9%)

EPA identified the following additional NODA commenter suggestions that did not fall into major categories:

<sup>7</sup> Universal waste percentages include instances where certain items (pharmaceuticals, aerosol cans, pesticides and electronics) were identified individually and where retail goods as a whole were mentioned.

<sup>8</sup> Assumed to include, but would not necessarily be limited to, pharmaceuticals, aerosol cans, pesticides and electronics.

- Determine the actual extent of the retail sector “universe” in terms of the numbers of retailers, types of retail items handled and amount of wastes generated, as well accurately designating generator categories (i.e., large quantity, small quantity and conditionally exempt small quantity generators).
- Coordinate with other federal agencies (e.g., Department of Transportation and Food and Drug Administration) when issuing guidance/policy or developing regulations that may affect management of materials/wastes in the retail sector in order to avoid unnecessary conflicts or duplication of effort.
- Clarify the Agency’s position regarding whether aerosol cans are considered a reactive hazardous waste.
- Conduct outreach activities such as identifying/providing opportunities for training and offering compliance assistance.
- Support use of e-Manifest and other electronic means of documenting compliance with RCRA regulations.
- Recognize challenges associated with waste management under differing state regulations.
- Eliminate the requirement for large quantity generators to store ignitable or reactive waste at least fifty feet from the facility’s property line.

To the extent they are not already being addressed through policy, guidance and rulemaking or other EPA actions, the Agency will consider the aforementioned issues as part of implementing this strategy.

### **III. Response to Household Hazardous Waste Exemption NODA Comments**

Some NODA commenters suggested that EPA expand the “household hazardous waste” exclusion at 40 CFR 261.4(b)(1) to include either retail goods as a whole or certain types of retail goods. The Agency has already addressed this issue as part of a previous rulemaking that responded, in part, to a petition from the American Retail Federation (ARF).

As explained in a final November 13, 1984 rule (49 FR 44978), EPA excluded household hazardous waste because the legislative history of RCRA indicated an intent to exclude such wastes and not because these wastes can never pose the risks associated with hazardous wastes. Additionally, consistent with legislative history, EPA determined that it was necessary to establish two criteria that must be met to qualify for this exclusion when evaluating ARF’s petition. First, the waste must be generated by individuals on the premises of a temporary or permanent residence and, second, the waste stream must be composed primarily of materials found in wastes generated by consumers in their homes. In this final rule, EPA denied ARF’s petition to exempt consumer household products from retail sources because these wastes fail to meet both criteria. EPA continues to believe that retail goods, including those that could become wastes when discarded, do not satisfy the criteria for this exclusion.

### **IV. Current EPA Activities to Address Retail RCRA Issues**

Prior to issuing the NODA in 2014, EPA had already begun developing the Pharmaceuticals rule (staring in 2009) and the Generator Improvements rule (starting in 2011), as well as the Definition of Solid Waste (DSW) rule. Because pharmaceutical hazardous waste is a large part of the retail sector’s RCRA concerns, EPA mentioned in the NODA that the Agency was developing a proposed rule for healthcare facility-specific management standards for hazardous waste pharmaceuticals (the Pharmaceuticals rule).

Although, for the most part, it was not possible to address all the feedback received on the NODA in these rulemakings, EPA has tried to incorporate approaches in these rulemakings to address some of the NODA comments in order to ease the burden of managing hazardous wastes in a retail setting. A discussion of these efforts is provided below:

#### **A. DSW Rule**

The final DSW rule, dated January 13, 2015 (80 FR 1694), provides new conditional exclusions for hazardous secondary materials. If these materials are managed according to specified conditions, legitimately recycled and sent to a verified recycler, they would not be regulated as a solid waste. Retailers may be able to use this

exclusion for recycling aerosol cans and possibly other retail items. Additional information on this final rulemaking is available at <http://www.epa.gov/hwgenerators/final-rule-2015-definition-solid-waste-dsw>.

EPA is coordinating with stakeholders and conducting outreach activities in order to implement and monitor effectiveness of the final DSW rule.

## **B. Generator Improvements Rule**

The proposed Generator Improvements rule, dated September 25, 2015 (80 FR 57018), advances approaches for addressing a number of issues facing the hazardous waste generator community, including the following issues relevant to the retail sector:

- Provides flexibility for episodic generators of hazardous waste.
- Allows consolidation of conditionally exempt small quantity generator waste at large quantity generators.
- Permits waiver of the 50-foot buffer requirement for ignitable/reactive wastes under certain conditions.

EPA plans to finalize this rule in fall 2016. Additional information on this rule is available at <http://www.epa.gov/hwgenerators/proposed-rule-hazardous-waste-generator-improvements>.

## **C. Pharmaceuticals Rule**

The proposed Pharmaceuticals rule, dated September 25, 2015 (80 FR 58014), addresses a number of retailer RCRA concerns. The proposed rule:

- Advances an approach so that a healthcare facility, including a retailer with a pharmacy, who generates 1 kg of acute P-listed hazardous waste pharmaceuticals in a calendar month will not become the most stringently regulated generator (a large quantity generator).
- Sets forth a tailored set of management standards specifically designed to reduce the complexity and regulatory burden of the RCRA hazardous waste regulations for the management of hazardous waste pharmaceuticals by health care facilities, including hospitals, clinics and retail stores with pharmacies.
- Provides regulatory clarity on how the reverse distribution of pharmaceuticals is regulated under RCRA.
- Explores two possible approaches in the rule to address concerns with designating nicotine-containing smoking cessation products (e.g., gums, lozenges and patches) and other low-concentration nicotine-containing products as acutely hazardous (P-listed) wastes. For both approaches, EPA requested toxicity data for nicotine (P075). The two regulatory options are: (1) a narrow exemption from the P075 listing for Food and Drug Administration-approved over-the-counter smoking cessation products (patches, gums, and lozenges) and (2) broader, concentration-based approach to listing nicotine (P-listing for high concentrations and U-listing for low concentrations, similar to the approach taken for warfarin).
- Requests comment in the rule preamble on whether e-cigarettes and nicotine-containing liquids for e-cigarettes should be included within the scope of the definition of pharmaceutical and therefore managed as other hazardous waste pharmaceuticals under the pharmaceuticals rule.

Additional information on this rule is available at <http://www.epa.gov/hwgenerators/proposed-rule-management-standards-hazardous-waste-pharmaceuticals>.

Beyond the pharmaceuticals proposed rule, EPA has issued guidance to provide regulatory clarity regarding the following issues:

- In letters dated May 8, 2015, EPA issued separate guidance clarifying that: (1) e-cigarettes are P075 waste due to the attached cartridges of nicotine (RCRA Online 14850) and (2) nicotine patches, gums, lozenges and e-cigarettes are not solid or hazardous waste when sent for nicotine reclamation (RCRA Online 14851).
- In a letter dated October 2, 2015, EPA also issued guidance clarifying that pharmaceutical controlled substances from households can be accepted at Drug Enforcement Agency-authorized collection receptacles, including those established at retail stores with pharmacies (RCRA Online 14853).

## **V. Upcoming EPA Activities to Address Retail RCRA Issues**

EPA is currently focusing the Agency's near-term efforts on finalizing the Pharmaceuticals and Generator Improvements rules. However, we will be undertaking a number of upcoming activities that will also address the RCRA concerns of the retail sector and other stakeholders.

Primarily, these activities include issuing a guide to recycling aerosol cans, proposing to add aerosol cans to the federal universal waste rules, and developing a policy that addresses the reverse distribution process for the retail sector as a whole.

To date, EPA has gathered useful information regarding management of consumer goods in the retail sector and the associated issues encountered during this process.<sup>9</sup> The Agency's strategy calls for continued engagement with the retail sector and other stakeholders, such as industry representatives and state/tribal/local governments, to support our efforts in moving forward to address the reverse distribution process and universal waste management. As necessary, in order to inform future EPA decisions, this outreach/coordination process is expected to involve attending meetings/conferences, conducting site visits and participating in work groups.

Upcoming activities are discussed in more detail below.

### **A. Guide to Recycling Aerosol Cans**

EPA is developing a guide on how to recycle aerosol cans under the existing Subtitle C recycling exclusions, including recycling aerosol cans for scrap metal recovery. EPA anticipates that this guide will assist generators of aerosol cans and recyclers to increase their recycling of this ubiquitous waste stream.

### **B. Role of Universal Waste Regulations**

EPA has been exploring the potential for adding certain retail items, such as aerosol cans, pesticides, and/or electronics, to the federal universal waste regulations by conducting the following activities:

- Obtain additional information regarding state programs currently in place to manage aerosol cans (e.g., California and Colorado) and electronics (e.g., Arkansas, California, Colorado, Connecticut, Louisiana, Michigan, Nebraska and New Jersey) as universal wastes.
- Identify and consult with states that are considering including aerosol cans, electronics or other types of items as categories of universal waste.
- Determine the extent to which states regulate other retail items, including pesticides beyond those recalled, as in suspended or cancelled, under the Federal Insecticide, Fungicide, and Rodenticide Act, as universal wastes.
- Evaluate information received from states, including any advantages/disadvantages and challenges associated with management of retail items as universal wastes.

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<sup>9</sup> Additional information regarding EPA's key observations and particular examples of stakeholder outreach efforts to date is provided in the Appendix to this strategy.

In addition to aforementioned, EPA considers a number of factors, as set forth in federal RCRA regulations, when determining whether a hazardous waste or category of hazardous waste should be included as universal wastes.<sup>10</sup> Taking into account feedback from NODA commenters and other information obtained to date, EPA believes that aerosol cans are likely to be good candidates for management under federal universal waste regulations. Therefore, the Agency is moving forward with plans to develop a proposed rule to address aerosol cans as universal waste.

### C. Policy on Reverse Distribution and RCRA

EPA recognizes that, although there are areas within the program that work well, RCRA regulations may not always be the best fit for the retail sector. This has come to light in terms of the reverse distribution process used in the retail sector, particular as relates to when discard occurs or is intended to occur and the timing of waste determinations.

Therefore, EPA intends to develop a policy that addresses the reverse distribution process for the retail sector as a whole. In doing so, EPA is working from the Agency's understanding regarding the "flow" of consumer goods among different entities, as well as the roles/relationships of retailers, suppliers/vendors, reverse logistics centers and others with respect to unused/intact consumer goods that have become unsalable at retail stores for a variety of reasons and are moving through the reverse distribution system.<sup>11</sup> Unsalable retail items include excess inventory, such as expired or outdated items, seasonal items, overstock, recalled (voluntary or involuntary) products and returned items.

In developing this policy, EPA will take into account key observations made to date (see appendix), with a particular focus on the nature/extent and significance of challenges encountered when managing consumer goods in the retail sector, by considering the following issues:

- Scope of the retail "universe," including the number of individually- or family-owned stores
- Positions of regulators such as EPA regions, states/tribes and, as necessary, local governments on the location of the point of generation
- Extent to which inspections by regulators continue to identify compliance issues in the retail sector, including failure to make hazardous waste determinations
- Extent to which the reverse distribution process results in appropriate management of unsalable consumer goods originating from retail stores, such that the percentage of retail items disposed as solid or hazardous waste is reduced to the maximum extent possible

This policy is not intended to address wastes from routine maintenance activities and cleanup of spilled materials, as well as damaged/leaking products no longer considered commodities and "unknowns" (item contents cannot be identified).

**Contact:** Questions regarding this strategy should be directed to Drew Lausch at lausch.robert@epa.gov or 703-603-0721 or Kristin Fitzgerald at fitzgerald.kristin@epa.gov or 703-308-8286.

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<sup>10</sup> These factors are discussed at 40 CFR 273.81.

<sup>11</sup> A diagram showing the flow of retail items and relationships among various organizations that manage consumer goods and wastes is available at <http://www.epa.gov/hwggenerators/strategy-addressing-retail-sector-under-resource-conservation-and-recovery-act>.

## APPENDIX

### Key Observations to Date

As part of developing this strategy, the Agency has been conducting outreach efforts (meetings, conferences, site visits, etc.) with key stakeholders and, based on these efforts, the following is noted in no particular order of importance:

- When and where hazardous waste determinations are made (i.e., at the store versus at a reverse logistics center) varies from retailer to retailer and from product to product – and may also vary with time.
- Positions of regulators on the location of the point of generation (when a product becomes a waste) vary and inspections of retail stores have identified compliance issues – and inspections are anticipated to occur in the future.
- Certain retail chains use safety data sheet-based scanning systems keyed to universal product codes (UPCs) or stock keeping units (SKUs) to assist in making waste determinations at the store; however, smaller retailers and individually- or family-owned stores may lack this capability and/or may not be fully aware of RCRA obligations.
- Information regarding the chemical content of certain manufacturers' products is sometimes made publicly available or, if it is considered confidential business information, may be selectively shared with others in order to inform appropriate end-of-life management.
- There exists software that relies upon proprietary manufacturers' product information to determine appropriate disposition of unsalable retail items, although how widely this software is utilized across the retail sector is not fully known.
- Retailers are using third parties to ensure proper management of products determined to be hazardous waste at store locations, although the extent to which this occurs across the retail sector is uncertain.
- Reverse logistics centers also use an SDS-based UPC/SKU scanning system, although the extent to which reverse logistics centers as a whole are taking this approach is uncertain.
- Waste determinations typically occur at the reverse logistics centers for some retail goods when it's clear that these items have a high possibility of being donated, liquidated or otherwise recycled.
- Certain non-prescription drugs (e.g., hand sanitizers, multi-symptom cold relievers and sore throat medicines) and supplements such as vitamins are sent to reverse logistics centers where they are disposed as hazardous waste if, for example, the expiration date has passed.
- Protocols or corporate directives are in place that specify how retail stores, reverse logistics centers and suppliers/vendors handle excess inventory, make hazardous waste determinations and decide the ultimate disposition of products, although this seems less likely in the case of individually- or family-owned stores.
- Contracts or other written agreements exist between a retailer and supplier/vendor that specify how the process for returning unsalable items and awarding of credit works, as well as the extent to which particular products are required to be managed a certain way, such as prohibiting donation/liquidation and requiring disposal as hazardous waste due to "branding issues" or other concerns.<sup>12</sup>

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<sup>12</sup> Since EPA is aware that a large percentage of unsalable retail items are "returned to the supplier/vendor," the ultimate disposition of these items is of interest to the Agency.

- Credit is provided to retailers for unsalable consumer goods, which have an inherent value in that they remain potentially marketable as commodities that could be donated or liquidated, which serves as incentive for proper management until such time credit is received.<sup>13</sup>
- Retailers may also be assuming increased responsibility for management and ultimate disposition of unsalable retail items as part of the “Adjustable Rate Policy” process (supplier/vendor or agent not involved).<sup>14</sup>
- Given past experiences or other information, such as agreements between suppliers/vendors and retailers, retailers may know beforehand that certain consumer goods will ultimately be disposed as hazardous waste, including products that are returned to ensure receipt of manufacturer/supplier credit.
- Reverse logistics centers play a key role in the management of consumer goods, performing functions such as data collection, financial reconciliation such as credit verification, recall management, material tracking and material disposition (i.e., reuse, recycling or disposal).
- Reverse logistics centers may also offer benefits such as increasing the likelihood that consumer goods may be donated or liquidated, due to economies of scale, and ensuring that hazardous waste determinations are properly performed.
- The role played by suppliers/vendors in management of retail products under RCRA, including providing credit to retailers, making hazardous waste determinations and influencing ultimate disposition, is critical and represents an area requiring further study.
- Suppliers/vendors play a critical role in management of retail products under RCRA, including providing credit to retailers, making hazardous waste determinations and influencing ultimate disposition.
- Retail items may be repaired/refurbished for ultimate use by consumers but how often and by whom is uncertain.
- Certain unsalable retail items may be returned to the manufacturer for use in preparing products (i.e., blended into existing formulations), although the extent to which this occurs is unknown.
- Feedback from state programs thus far indicates that management of items such as aerosol cans and electronics as universal wastes works well.
- Recycling of aerosol can propellant for use as fuel and the actual container as scrap metal, appear more common than recycling of can contents (product).

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<sup>13</sup> It does not necessarily follow that these items will ultimately be donated or liquidated since they may become a waste in cases where a supplier/vendor requires disposal or where a reverse logistics center determines that disposal is the only remaining management option.

<sup>14</sup> Additional information on the Adjustable Rate Policy and other reimbursement policies for unsalable items can be found in the publication entitled, 2008 Joint Industry Unsaleables Management Study: The Real Causes and Actionable Solutions. This publication is available at <http://www.gmaonline.org/downloads/research-and-reports/UnsaleablesFINAL091108.pdf>.

## Stakeholder Outreach Efforts

Since the close of the NODA comment period, EPA has been reaching out to various stakeholders and engaging in discussions in order to learn more about challenges associated with RCRA and the retail sector. Some examples include:

- EPA participated in the Retail Industry Leaders Association (RILA) conference during September 29-October 2, 2014 in Minneapolis, MN, which accorded an opportunity to network with various industry representatives regarding the Retail NODA and the Agency's retail initiative.
- EPA provided an update regarding the Retail NODA at the annual meeting of the Association of State and Territorial Solid Waste Management Officials on October 30, 2014 in Reston, VA.
- On November 20, 2014, EPA met with the World Floor Covering Association (WFCA) to learn more about WFCA's industry/membership and discuss the Retail NODA and better understand the relevance of Agency's retail initiative and retail strategy development on products manufactured by WFCA members.
- On January 7, 2015, EPA provided regulatory updates to regions and states including a discussion regarding the status of the Pharmaceuticals Rule, Generator Improvement Rule and Definition of Solid Waste Rule, as well as efforts associated with the retail initiative and retail strategy development.
- On January 14, 2015, EPA participated in a regulatory roundtable as part of the Council on Safe Transportation of Hazardous Articles Quarterly Membership meeting in Arlington, VA. Discussions involved Retail NODA comments and development of a strategy to address retailer concerns.
- EPA gave a presentation on the Retail NODA and development of a retail strategy as part of the RILA conference on February 10<sup>th</sup> in Atlanta, GA and Pesticide Stewardship Alliance conference on February 11<sup>th</sup> in Savannah, GA.
- During February 23-26, 2015, the Agency participated in a series of meetings and visits involving EPA Region 9, various levels of government in the State of California (Attorney General's Office, Cal EPA, local District Attorney Offices and counties), and industry representatives. This included tours of an electronics waste facility, retail stores (CVS, COSTCO and Lowes) and a reverse logistics center (Inmar Incorporated).
- During March 16-19, 2015, in support of implementing the EPA's Retail Sector Strategy, the Agency attended the Store Planning, Equipment, Construction and Facilities Services 2015 Annual Conference in Las Vegas, NV – where the Agency gave a presentation on RCRA and the retail strategy and sustainability management – toured a Walmart store and return center, and met with the State of Nevada's Division of Environmental Protection.
- On April 13, 2015, EPA participated in a Retail Waste Workgroup meeting sponsored by the California Department of Toxic Substances Control. This meeting included regulators at federal, state and local levels of government in California, as well as representatives from industry such as retailers and suppliers. EPA gave a presentation on efforts to date to address RCRA and the retail sector.
- On June 9, 2015, EPA provided an overview of the Pharmaceuticals Rule and Generator Improvement Rule, as well as the planned Retail Sector Strategy, at a Northeast Waste Management Officials Association training workshop in Sturbridge, MA.
- During July 7-9, 2015, the Agency participated in a series of meetings and visits involving EPA Region 4, the Alabama Department of Environmental Management and the Georgia Department of Environmental Resource's Environmental Protection Division. This included a meeting with Giant Cement Holding Incorporated representatives and tour of Giant Resource Recovery's aerosol processing/recycling facility.

- EPA participated in the RILA conference during September 14-17, 2015 in Austin, TX, at which time the Agency gave presentations on the proposed Hazardous Waste Pharmaceutical and Hazardous Waste Generator Improvements rules as well as provided an update on the Agency's retail strategy. EPA also met with representatives from the Texas Commission on Environmental Quality.
- EPA participated in the Consumer Products Regulatory Compliance Workshop co-sponsored by the Personal Care Products Council and Consumer Specialty Products Association in Sacramento, CA during September 29-30, 2015. EPA gave a presentation on the Agency's retail strategy and an overview of federal RCRA regulations as they pertain to the retail sector, including the proposed Hazardous Waste Pharmaceutical and Hazardous Waste Generator Improvements rules.
- On November 30, 2015 and December 1, 2015, the Agency participated in facility visits involving the Pennsylvania Department of Environmental Protection and New Jersey Department of Environmental Protection. This included tours of a manufacturer's distribution center (S.C. Johnson), a reverse logistics center (DRS Product Returns) and a pharmaceutical wholesaler (Cardinal Health).
- On February 25, 2016, EPA met with Eli Lilly, Merck, Johnson & Johnson, Pfizer and two other pharmaceutical manufacturers to discuss comments on the proposed pharmaceuticals rule.
- EPA met with representatives of the Consumer Healthcare Products Association on April 21, 2016 to discuss comments on the proposed pharmaceuticals rule.
- During May 11-12, 2016, EPA participated in the Consumer Specialty Products Association mid-year meeting at National Harbor, MD. EPA gave a presentation on the Agency's ongoing efforts to address the retail sector, including a discussion on aerosol cans.
- EPA met with representatives from CVS Pharmacy on May 17, 2016 to discuss comments on the proposed pharmaceuticals rule.
- On May 26, 2016, EPA provided an overview of the proposed pharmaceuticals rule during a Retail Waste Workgroup meeting sponsored by the California Department of Toxic Substances Control.
- EPA participated in the Northeast Waste Management Official's Association annual meeting on June 14, 2016 in Westford, MA. The Agency provided updates on major rulemaking efforts, as well as the retail strategy.
- On June 16, 2016, EPA met with representatives from Integrated Liner Technologies to discuss the proposed pharmaceuticals rule.