

## Ohio Hazardous Waste

# Notifier

A Publication of Ohio EPA, Division of Hazardous Waste Management

## DHWM Updates Long-Term Goals

**I**f you have not been to our Web site recently, you might not be aware of changes we have made to our long term goals (LTGs). A number of our LTGs were updated, but not significantly altered; some have been modified significantly; and a couple of them are new. Our goals are important to us. They serve as our road map to near- and long-term activities which will likely impact you in some way as a stakeholder or citizen of Ohio.

The division administers Ohio's hazardous waste management program, which is equivalent to the Resource Conservation and Recovery Act (RCRA) Subtitle C program. We believe it is important to demonstrate leadership by promoting pollution prevention, recycling and waste reduction concepts. Members of our regulated community are often made aware of options available to conserve resources and reduce waste. We have made this an integral component of all of our activities and, in particular, our inspection and technical assistance outreach programs. We also strive for continuous improvement and

increased efficiency in implementing our business plan – we know you expect nothing less.

One of our new goals focuses on adherence to Ohio EPA's customer service principles. We have reaffirmed our commitment to implementing a quality program. We have also made adjustments to the regulatory focus of our hazardous waste program. We are still actively implementing a regulatory program geared toward preventing regulatory violations and releases of hazardous wastes and hazardous waste constituents to the environment. In addition, we are also focusing on completing cleanups where releases have already occurred in order to protect the public health and the environment.

The **division's long-term goals** are available on our Web page for your review. I invite you to review our goals and provide feedback on our performance in implementing the program.

Michael Savage, Chief  
Division of Hazardous  
Waste Management

## Ask the Inspector:

**Q: What is a conditionally exempt small quantity generator?**



**A:** Conditionally Exempt Small Quantity Generators (CESQG) are those companies that generate less than 100 kilograms (220 pounds or ~25 gallons) of hazardous waste in any calendar month.

**Q: How do Ohio EPA's CESQG rules differ from U.S. EPA's?**

**A:** Ohio's CESQG rules are located in Ohio Administrative Code (OAC) **rule 3745-51-05**. U.S. EPA and most other states provide CESQGs with the option of delivering their hazardous waste to a permitted state, local or registered municipal solid waste landfill. Ohio law does not allow for this option. According to OAC rule 3745-51-05(F)(3), CESQGs wishing to dispose of their hazardous waste in Ohio must

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## I Don't Generate Very Much Waste, do I Need to Evaluate it?

**A**ll waste generated by businesses in Ohio must be evaluated to determine if it is a hazardous waste. Ohio Administrative Code (OAC) [rule 3745-52-11](#) applies regardless of how small the volume of waste or how infrequently the waste is generated. A waste can be classified as hazardous waste if it exhibits any of the characteristics identified in OAC [rules 3745-51-20 to 3745-51-24](#), or if it is listed in OAC [rules 3745-51-30 to 3745-51-35](#).

You must evaluate your waste frequently enough to ensure that you are not disposing of hazardous waste at a solid waste landfill. As the generator, you are in the best position to evaluate the waste because you have knowledge of the process and the raw materials used. OAC [rule 3745-52-40\(C\)](#) requires that you maintain records to document a waste evaluation for three years from the date you send the waste off-site.

Ohio's hazardous waste regulations mandate waste evaluation and other hazardous waste responsibilities in Ohio. You may fulfill the evaluation requirement by either using knowledge of the waste stream or appropriate analytical procedures. If using analytical procedures, you must test a representative sample of the waste stream. If you determine that your business generates hazardous waste, you must then meet all of Ohio's applicable hazardous waste regulations.

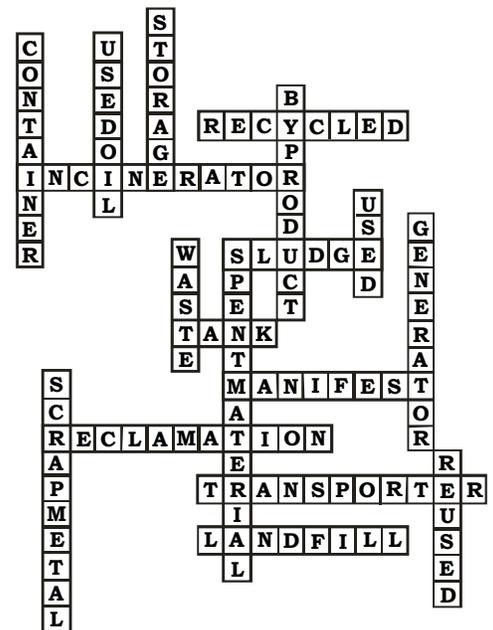
To learn more about the hazardous waste regulations, refer to Ohio EPA's [Hazardous Waste Generator Handbook](#). To read about materials that are excluded from the definition of hazardous waste, refer to OAC [rule 3745-51-04](#).

Between July 1, 2000 and June 30, 2003, Ohio EPA staff inspected 1,233 waste handlers, of these, 1,051 of them were cited with hazardous waste violations including 335 who had violations of OAC rule 3745-52-11 for failing to properly evaluate their waste to determine if it is a hazardous waste.

To help avoid the potential environmental problems and ensure that you comply with the hazardous waste regulations, please contact Ohio EPA, Division of Hazardous Waste Management (DHWM) if you have any questions when you're classifying your waste or if you want to discuss the results of your waste evaluation. You can contact the Regulatory Services Unit by phone at 614-644-2917, or by e-mail at [jeff.mayhugh@epa.state.oh.us](mailto:jeff.mayhugh@epa.state.oh.us).



### Answers to Fall 2003 Notifier Puzzle



## Reducing Solvent Purchase and Disposal Costs On-Site Solvent Recycling Equipment May Be the Answer

### Does Your Company Purchase Virgin Solvent and Dispose of Spent Solvent Off-site?

If you answered yes, you have something in common with many hazardous waste generators in Ohio. Solvent purchase and disposal costs constitute major expenses for many businesses. If solvents cannot be eliminated from the process, recycling and reuse are the next best options. Businesses can use an outside recycler, but it may be worthwhile to consider purchasing solvent recycling equipment that can be used on-site.

Prior to purchasing recycling equipment, it is important for businesses to understand how the equipment operates. Businesses should also conduct a cost/benefit analysis and consider other issues including: the viability of the solvent for recycling and reuse; safety concerns; labor needs for ongoing operation and maintenance; and regulatory compliance considerations.

### How do solvent distillation units work?

Distillation units heat waste solvent to its boiling point, evaporating the solvent and condensing the solvent vapors into a separate container. The remaining contaminants, called "still bottoms," are sometimes processed into fuel for energy recovery or sent off-site for disposal.

Units generally consist of the process chamber or boiler, encapsulated heaters, an air-cooled condenser, associated piping and instrumentation.

### Are the spent solvents you generate viable for recycling and reuse?

You should evaluate if the spent solvents you generate can cost-effectively be recycled by distillation. Some issues to consider are:

1) *Is distillation the right technology?*

Distillation efficiently separates similar liquids. If solid particles are the main contaminant, filtration may be more appropriate technology.

2) *Can the distilled solvent be used again for the same process?*

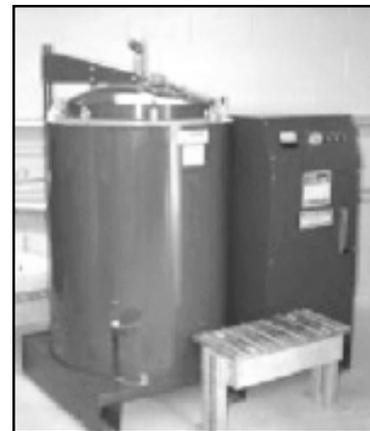
If not, is there another process in which the solvent can be used? If your business uses a blended solvent, and the solvents have a wide range of boiling points, distillation will yield a solvent different from the original blend. This different blend may be unsuitable for the original use. However, it may be suitable for other uses at your business.

3) *What is the percentage of solids or other contaminants in your waste?*

Some still manufacturers claim a high solvent recovery percentage (90-95%). If your waste is not mostly solvents, this method may not be cost effective.

4) *Will you need to segregate the different waste solvents generated to use the unit?*

If you are currently commingling solvent waste streams, simple batch distillation will produce a mixed solvent product which may not be suitable for any of the current solvent uses. You may need to implement procedures to prevent mixing of solvents.



**Solvent Distillation Unit**  
(from U.S. Navy P2 library-Solvent Distillation)

5) *Do you use a solvent with a very high boiling point?*

If so, a vacuum distillation unit may be required due to safety (fire and explosion) concerns. Vacuum distillation can add significantly to the purchase price and operating costs.

Distillation unit vendors can help you determine the feasibility of distillation at your business. Vendors may also be willing to recycle a sample of your waste to demonstrate the effectiveness of the process and to determine the characteristics of the recycled solvent.

### What are the regulatory issues involved with on-site recycling?

Most spent solvents are hazardous wastes because the solvents themselves have toxic or flammable properties or they become contaminated during use. Consult Ohio Administrative Code (OAC) Rules 3745-52-11 and 3745-51-20 through 35 to determine if

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## Solvent continued from page 3

the solvent waste generated by your business is considered a hazardous waste.

Hazardous spent solvent waste is subject to regulation prior to distillation. Your business would be responsible for maintaining compliance with applicable hazardous waste rules if accumulating spent solvent prior to the distillation process.

The distillation process itself is exempt from regulation as a hazardous waste treatment process, per [OAC rule 3745-51-06 \(C\)\(1\)](#). Therefore, a business operating a still would not be required to maintain a hazardous waste treatment permit for this unit.

Still bottoms generated from distillation units are generally hazardous wastes. If the spent solvent your business generates is listed in [OAC rule 3745-51-31](#), the still bottoms generated from the distillation of this solvent would also be a listed hazardous waste. Still bottoms may also exhibit characteristics of hazardous wastes as defined in [OAC rules 3745-20 through 24](#).

The reclaimed solvent resulting from on-site recycling is considered a product as long as it is used for its intended purpose (treated as virgin solvent).

Distillation units may be subject to Ohio's air pollution control regulations, including the requirements for permits to install (PTIs) and permits to operate (PTOs). PTI and PTO exemptions do exist, and often times small, on-site recycling units meet the conditions necessary to obtain these exemptions. Please review [OAC Chapters 3745-31 and 3745-21](#) and contact your local division of air pollution control representative to determine which requirements may apply.

## Cost Analysis

There are many different types of solvent distillation equipment, each with different capabilities and capacities. Many equipment vendors can provide cost-benefit worksheets to businesses interested in analyzing whether recycling is viable and which type of unit would best fit its needs. In order to conduct the analysis, you'll need to know basic information such as the type of solvent used, the cost of the solvent, the amount of solvent used, possible contaminants in the solvent, cost of waste disposal, etc.

The type of solvent distillation system selected should be based on the type of solvents used, the contaminants being removed, the batch size and the type of cleaning operation. Variations in these parameters lead to a wide range of costs. For example, a self-contained, batch distillation unit can vary in price from \$2,000 to \$30,000. Cost of the units are also determined by the size and the materials of construction. Distillation capacity can range from one- to 250-gallon batches.

The Iowa Waste Reduction Center (IWRC) has developed a [solvent distillation unit calculator](#) on its Web site. The calculator uses your estimate of gallons per year of solvent to calculate an estimated payback period for the purchase.

## How can I purchase equipment?

Ohio EPA, Office of Pollution Prevention (OPP) has a list of [solvent recycling equipment vendors](#) on its Web page. The IWRC also provides a [vendor database](#).

## Do you have any additional questions?

If you have additional questions, or would like more advice on ways to generate less hazardous waste, please contact a district office hazardous waste inspector.

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### An example calculation using IWRC's calculator

#### Input

Solvent Usage	500 gallons/year
Estimated new solvent usage with distillation	50 gallons/year
Solvent cost	\$4.00/gallon
Still bottom (waste) generation from unit	33.3 gallons/year
Current spent solvent disposal cost	\$2.80 per gallon
Estimated still bottom disposal cost	\$5.00 per gallon
Solvent distillation unit cost	\$3,500.00

#### Annual Operating Cost Comparison

	Distillation	Disposal
Material	\$200.00	\$2,000.00
Waste disposal	\$166.65	\$1,400.00
Total operational costs	\$366.65	\$3,400.00

#### Economic Analysis Summary

Annual savings for solvent distillation	\$3,033.33
Capital cost for purchase of equipment	\$3,500.00
Payback period	1.15 years

## Coming Soon: Draft Updated Closure Plan Review Guidance

**W**hen a hazardous waste treatment, storage and disposal facility stops storing and/or receiving waste, the owner/operator must close the hazardous waste management unit and/or facility according to the facility's approved closure plan. Federal and state laws require closure plans to ensure that hazardous waste management units and/or facilities are closed properly. Ohio EPA's Division of Hazardous Waste Management (DHWM) reviews closure plans to ensure an environmentally acceptable closure and to ensure that all regulatory requirements for closure are met, including the closure performance standard in Ohio Administrative Code (OAC) [rule 3745-55-11](#) or [3745-66-11](#). Once a closure plan meets the requirements, it is reviewed for approval by the director of Ohio EPA.

In 1991, DHWM developed the Closure Plan Review Guidance (CPRG). DHWM staff currently use the [1999 CPRG](#), along with year [2000](#) and [2001](#) supplements, to assist with the evaluation of closure plans for hazardous waste management facilities. Facility owners and/or operators may also find the guidance helpful while preparing closure plans for DHWM review.

DHWM is in the process of updating the 1999 CPRG. Major revisions include:

- Updated formatting and organization.
- Incorporation of 2000 and 2001 supplements.
- Updated rinsate standards for decontamination.
- Expanded sampling and analysis section.

- Additional guidance on appropriate screening methods.
- Special considerations for problematic contaminants.
- Addition of an appendix regarding Final Covers for Hazardous Waste Surface Impoundments, Waste Piles, and Landfills.

DHWM is dedicated to providing stakeholders with quality and timely service. One aspect of this is to provide stakeholders with information on proposed policies and an opportunity to comment on these draft policies. This enhanced participation process exceeds the notification requirements of [Ohio Revised Code \(ORC\) §3745.30](#), which governs the content and issuance of Ohio EPA policies. When the draft updated CPRG is released, DHWM will ask for stakeholder comments on the revised and updated sections. There will be forty-five (45) day public comment period.

DHWM will use three methods to announce the issuance of the draft updated CPRG, start of the public comment period, instructions on how to obtain a copy and how to submit comments. Announcements will be made on the current issues section of [our Web site](#) and through our [electronic news service](#). If you would like to receive the announcement through our electronic news service, please sign up for the *Guidance* electronic news service on our Web site. If you would prefer to receive the announcement by mail, please contact Angela Scott-Owens at 614-644-2944. On conclusion of the 45-day comment period, DHWM will review all comments, make any appropriate changes to the document and issue the updated CPRG as a final document.

Although the official comment period will provide an opportunity to make formal comments, DHWM

will accept comments on the CPRG anytime. If you would like to make a comment, please send them to Ed Lim, Ohio EPA, Division of Hazardous Waste Management, manager of Engineering and Risk Assessment, at [ed.lim@epa.state.oh.us](mailto:ed.lim@epa.state.oh.us).

### Solvent *continued from page 4*

<b>CDO</b>	614-728-3778
<b>NEDO</b>	330-963-1200
<b>NWDO</b>	419-352-8461
<b>SEDO</b>	740-385-8501
<b>SWDO</b>	937-285-6357

Our hazardous waste inspectors offer technical and regulatory assistance to businesses by helping them identify ways to generate less waste. If you would like to learn more about pollution prevention visit [OPP's Web site](#).

### References:

The U.S. Navy fact sheet in their P2 library: [http://p2library.nfesc.navy.mil/P2\\_Opportunity\\_Handbook/8\\_I\\_4.html](http://p2library.nfesc.navy.mil/P2_Opportunity_Handbook/8_I_4.html)

Michigan's Department of Environmental Quality fact sheet "Considerations in Selecting a Commercial (Off-Site) Solvent Recycling Service" at: <http://www.deq.state.mi.us/documents/deq-ead-recycle-solrecyc.pdf>.

The Minnesota Technical Assistance Program fact sheet "Selecting a Still for On-Site Solvent recycling" at: <http://mntap.umn.edu/mach/62-Still.htm>

# 6.

## Fluorescent Lamps

### ACROSS

8. In late 2004, hazardous waste lamps will be added to Ohio's \_\_\_ \_\_\_ found in Ohio Administrative Code Chapter 3745-273. (3 words)

10. Fluorescent lamps must be packaged to minimize \_\_\_ and the packaging must be designed to contain potential releases due to breakage during storage and transportation.

12. Currently in Ohio, if lamps do not meet the definition of hazardous waste they are \_\_\_ \_\_\_. (2 words)

11. When \_\_\_, characteristic by-products become subject to all applicable hazardous waste regulations.

13. Used lamps meeting the definition of \_\_\_ waste are currently considered to be by-products exhibiting a characteristic of a hazardous waste.

14. Both small and large quantity handlers of Universal Waste may accumulate their fluorescent lamps on-site for up to \_\_\_ year.

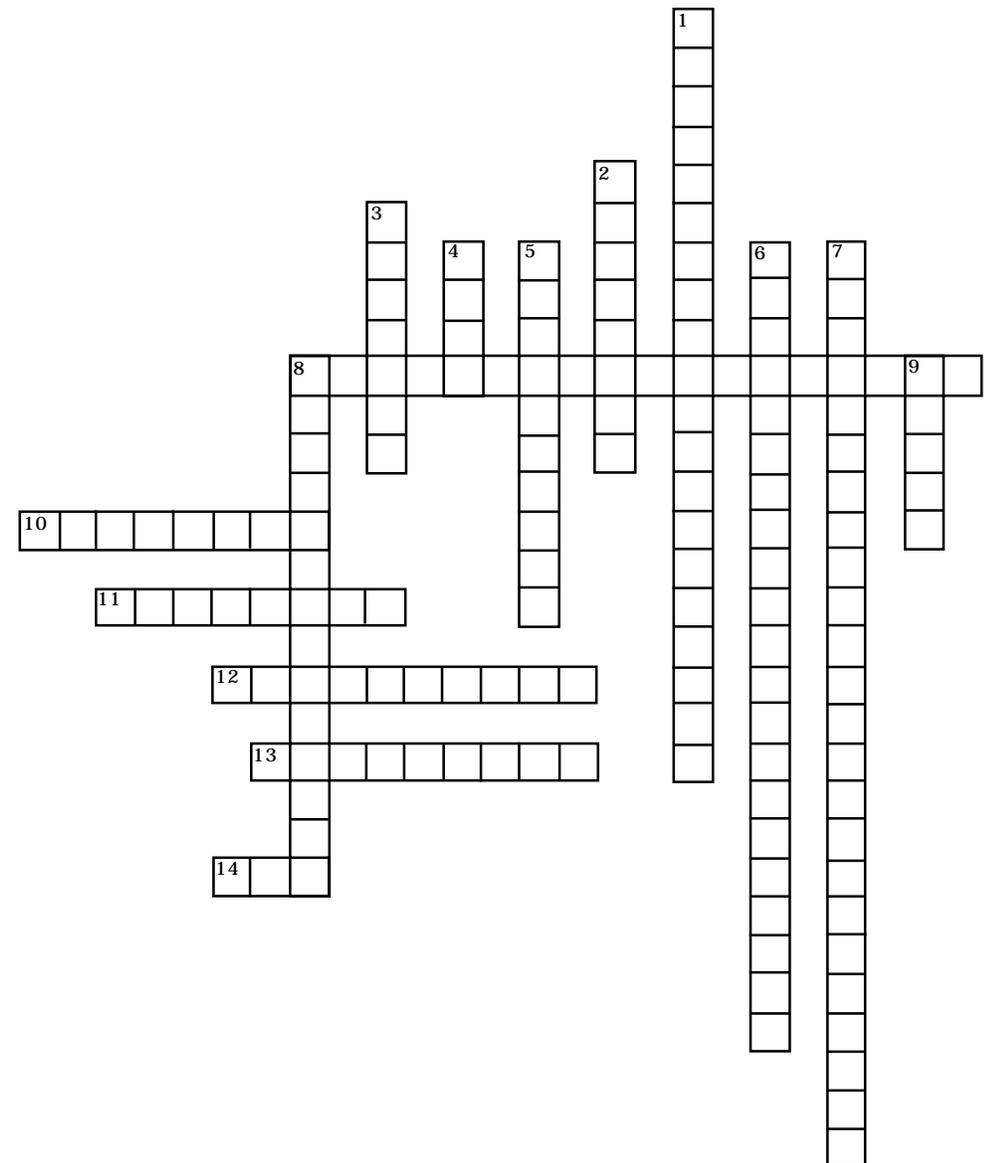
### DOWN

1. Universal Waste transporters are not required to obtain a hazardous waste \_\_\_. (2 words)

2. When \_\_\_ by being reclaimed, characteristic by-products are not waste and thus not subject to hazardous waste regulations.

3. In the event of a broken, damaged or \_\_\_ fluorescent lamp, Ohio EPA will allow these lamps to be sent to permitted recycling facilities.

4. Each container or outer container must be labeled with the \_\_\_ the fluorescent lamps became a waste, or some other method that identifies when the waste was generated.



5. Some examples of acceptable packaging include double or triple-cardboard containers with \_\_\_ \_\_\_. (two words)

6. Crushing fluorescent lamps is prohibited under the Universal Waste Rule except at permitted \_\_\_ \_\_\_. (2 words)

7. Under the Universal Waste Rule, hazardous waste lamps being discarded will no longer be categorized as \_\_\_ \_\_\_-\_\_\_; they will be considered "spent materials." (2 words)

8. Facilities handling \_\_\_ \_\_\_ can fall under three categories, small quantity handler, large quantity handler, and destination facility. (2 words)

9. \_\_\_ are the bulb or tube portion of an electric lighting device. Examples include high pressure sodium, high intensity discharge and fluorescent.

# Notifier

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## Ask the Inspector *continued from page 1*

send it to a permitted treatment, storage and disposal (TSD) facility. Generators in the state of Ohio, regardless of the amount of waste they generate per month, are not permitted to dispose of their hazardous waste in a municipal solid waste landfill located in Ohio. However, CESQGs can dispose of their hazardous waste at a solid waste landfill located in another state that permits such activity. If you have any questions or require further clarification on this issue, please contact Ohio EPA, Division of Hazardous Waste Management (DWHM), Regulatory Services Unit at 614-644-2917.

