

## **NEWMOA Hazardous Waste Conference Call March 8, 2016**

### **Topic: State Views on Waste Management Requirements for Vape Shop and E-Cigarette Juice Waste**

**Disclaimer:** NEWMOA organizes regular conference calls or webinars so its members, EPA Headquarters, and EPA Regions 1 and 2 can share information and discuss issues associated with the implementation of the Resource Conservation and Recovery Act (RCRA), compliance assistance, enforcement, and other topics. Members of the group prepare draft notes of the calls for use by those members that were unable to participate and for future reference by the participants. These notes are intended to capture general information and comments provided by the participants and are not a transcript of the call. NEWMOA provides the participants on the calls with an opportunity to review drafts of the notes prior to posting them on the members' only area of the hazardous waste page on the NEWMOA website. NEWMOA staff makes all recommended corrections to the notes prior to posting.

Any comments expressed by participants should not be considered legal opinions or official EPA or State positions on a particular rule, site-specific matter, or any other matters. Participants' comments do not constitute official agency decisions and are not binding on EPA or the States. For exact interpretations of a State's or EPA's RCRA regulations, rules, and policies, NEWMOA recommends that readers of these notes contact the appropriate hazardous waste program in the State's environmental agency or EPA Headquarters or EPA Regional RCRA staff.

**Participants:** CT DEEP (3 people); Mass DEP (3 people); NH DES (9 people); NJ DEP (3 people); NYS DEC (10 people); VT DEC (2 person); EPA Region 1 (4 people); EPA Region 2 (1 person); EPA HQs (3 people); NEWMOA (1 person)

The lead was NH; NJ was note-taker.

### **Background**

Below are two background documents provided by NH DES prior to the call. They include a May 8, 2015 letter from the EPA regarding the hazardous waste classification of e-cigarettes. They also provided a summary of NH's recent findings regarding vape shops, e-juice manufacturing, and e-cigarettes in general, which includes pictures.

The call participants discussed whether or not containers should be counted toward a facility's hazardous classification. An EPA representative on the call stated that only the residue needs to be counted. Some state representatives expressed the view that the entire container needs to be counted if it contained acute waste. This issue was not resolved during the call.

The call participants discussed the household waste exclusion not applying to hazardous wastes generated by individuals *outside* of their households, and that this would impact the proposed BMP on p. 4 of a carry-in/carry-out policy for customer waste (particularly in NH since NH regulates CESQGs as SQGs, thus making the customers SQGs when they carry out their hazardous waste). Customers could be required to make waste determinations outside of the store, since they may decide to get the juice bottle refilled at another shop, or re-fill it at home, etc. The BMP could be changed to say that stores should have their customers make waste

determinations about empty bottles at home (if they will re-use them or dispose of them) and not in their store (basically carry in/carry out).

Conditionally Exempt Small Quantity Generators (CESQGs) are regulated like Small Quantity Generators (SQGs) in New Hampshire. Since nicotine is the sole active ingredient in e-cigarettes, the Agency decided to perform an initiative involving visits to vape facilities throughout the State. They summarized the results of their visits as follows:

- Samples in the stores are to give the customer a taste of the different flavors and do not contain nicotine, so those empty sample containers are not a concern.
- All shops visited said they either heavily discount e-juice that is expired/close to expiration or employees consume, none of the stores said they dispose of e-juice in the trash.
- Most said there was not much, if any, waste from customers vaping in the store (empty e-juice bottles/cotton from units), but some did see it periodically.
- Most stores did not sell disposable e-cigarettes.
- The cotton within the e-cigarette devices is changed out every 2-3 days in the devices that the e-juice is dripped on and every 2-3 weeks in the type with the reservoir.
- E-juice makers use larger bottles of nicotine (30 percent nicotine content) and put it into a smaller bottle (that is re-used) with a metered dispenser, drips of the nicotine concentrate from the dispenser was observed at one shop.

New Hampshire is developing a set of Best Management Practices (BMPs) for vape shops, which includes the following:

- E Juice Makers
  - Must notify
  - Empty containers are hazardous waste
  - Spills/drips are hazardous waste
- Expired/Damaged Product with Nicotine
  - Send back for credit/company for recycling
  - Sell discounted/give to employees or manage as hazardous waste
- Vape Lounges/Customer Waste
  - Carry in/Carry out policy should be posted, so the store won't have any empty containers/cotton, or
  - Collect empty containers and manage as hazardous waste
- Coil Rebuilders
  - Cotton from customers re-builds goes back into unit or request units come in without cotton, or
  - Collect cotton and manage as hazardous waste (must be notified) - the call participants discussed whether or not the cotton in e-cigarettes should be considered used or unused; this issue was not resolved during the call
- Batteries

- Manage as Universal Waste – battery store take-backs, transfer station, Transporter

This summer, DES anticipates having interns do some research (phone calls and web searches) to find more vape shops, specifically ones that make their own e-juice. They will not be sending college interns out to visit shops due to the indoor air conditions and the length of time it takes on these initial visits. Most shops are very small stores and are full of haze/smoke (mostly from the employees' vaping).

They will send packages (with BMPs, rule citations, transporter information, and forms) to the shops that make their own e-juice asking them to notify as a SQG by August 1<sup>st</sup>. Any shops that have not notified by August 1<sup>st</sup> will be followed-up with in some way to be determined in the future. Packages will also be sent to the shops that just sell e-juice or have vape lounges to let them know what they need to do and some suggestions for disposing of nicotine related waste.

The participants in the call were asked to respond to the following questions:

- Are they regulating vape shops?
- Are they planning on regulating vape shops?
- Have they visited/inspected any vape shops?
- If so, what their findings are or anything of interest to note?

#### Connecticut

- Have not yet performed inspections of these facilities
- Think that the Pharmaceutical Rule may impact the e-cigarette issue

#### Massachusetts

- Similar to Connecticut
- Have not yet performed inspections of these facilities
- Unused e-cigarettes can be sent to a Reverse Distributor
- Used non-refillable e-cigarettes are household waste when discarded by citizens

#### New Jersey

- State has inspected two of these facilities
- Treating these inspections as compliance assistance visits (fact finding)
- Consider juice makers to be laboratories

#### New York

- Have not yet performed inspections of these facilities
- Shops are regulated in New York (since CESQGs are “regulated” even by EPA, although these requirements are very modest)
- State does not allow CESQG waste in the trash
- Does not know if waste wicking is a P-listed waste

#### Vermont

- Similar to Connecticut and Massachusetts
- Have not yet performed inspections of these facilities

## EPA

- Most concerned with laboratories because that is where the acute waste is generated, but some States were undecided

## **Background Provided by NH DES**

NH regulates CESQGs, so once EPA made the determination that nicotine was the sole active ingredient in e-cigarettes/e-juice, we decided to look into all of the new shops opening up in the state.

NH is planning on developing Best Management Practices for shops to minimize the amount of shops that will have to notify as a generator and/or the amount of hazardous P-listed waste they will generate.

It's clear that shops that make their own e-juice will have to notify in NH, because they will have waste from empty containers and drips. Other shops that don't make e-juice may be able adopt some internal policies that will allow them to remain un-notified.

## **NHs notable findings:**

- Samples in the stores are to give the customer a sample of the different flavors and do not contain nicotine, so those empty sample containers are not a concern.
- All shops visited said they either heavily discount e-juice that is expired/close to expiration or employees consume, none of the stores said they dispose of e-juice in the trash.
- Most said there wasn't much, if any, waste from customers vaping in the store (empty e-juice bottles/cotton from units), but some did see it periodically.
- Most stores did not sell disposable e-cigarettes.
- The cotton within the e-cigarette devices is changed out every 2-3 days in the devices that the e-juice is dripped on and every 2-3 weeks in the type with the reservoir.
- E-juice makers use larger bottles of nicotine (30 percent nicotine content) and put it into a smaller bottle (that is re-used) with a metered dispenser, drips of the nicotine concentrate from the dispenser was observed at one shop.

## **NH's Suggested BMPS**

### E Juice Makers – MUST NOTIFY:

Empty containers are hazardous waste

Spills/drips are hazardous waste (drips were observed during dispensing process)

### Expired/Damaged Product with Nicotine:

Send back for credit/company for recycling

Sell discounted/give to employees (this is what all of the shops were doing)

OR

Manage as hazardous waste (must be notified)

### Vape Lounges/Customer Waste:

Carry in/Carry out policy posted (so the store won't have any empty containers/cotton)

OR

Collect empty bottles, cotton, cartridges/disposables and manage as hazardous waste (must be notified)

Coil Rebuilders:

Cotton from customers re-builds goes back into unit or request units come in without cotton

OR

Collect cotton and manage as hazardous waste (must be notified)

Batteries:

Manage as Universal Waste – Battery store take-backs, Transfer station, Transporter

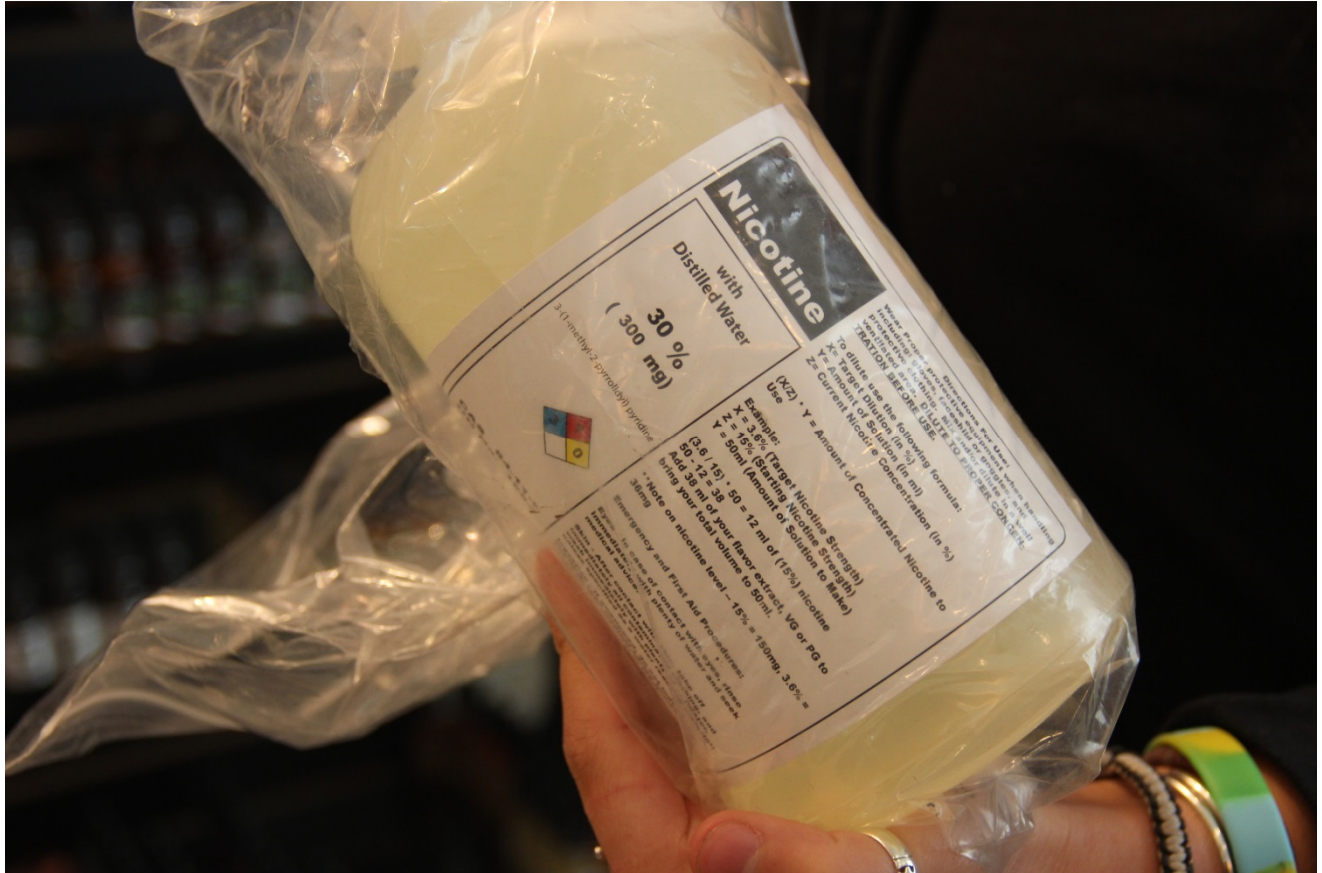
**NH's Plans for the Summer**

This summer, DES will have interns do some research (phone calls and web searches) to find more vape shops, specifically ones that make their own e-juice. During our visits, we decided that we didn't want to send college interns out to visit shops due to the indoor air conditions and the length of time it takes on these initial visits. Most shops are very small stores and are full of haze/smoke (mostly from the employee's vaping).

DES will send packages (with BMPs, rule citations, transporter information, and forms) to the shops that make their own e-juice asking them to notify as a NH SQG by August 1<sup>st</sup>. Any shops that have not notified by then we will follow-up with in some way, to be determined.

Packages will also be sent to the shops that just sell e-juice or have vape lounges to let them know what they need to do and some suggestion for disposing of nicotine related waste.

## Photos



One example of the concentrated nicotine (appears viscous) that gets transferred to the re-usable dispenser.



Dispenser with the bottle underneath that is re-used.



Making e-juice (rag underneath catches drips).



Discounted e-juice example.



Applying e-juice to cotton (cotton changed out every few days)

CMF





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

MAY 08 2015

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

Daniel K. DeWitt  
Warner, Norcross & Judd LLP  
900 Fifth Third Center  
111 Lyon Street, N.W.  
Grand Rapids, MI 49503-2487

Dear Mr. DeWitt:

Thank you for your letter of March 12, 2014, requesting EPA's determination regarding the hazardous waste status of e-cigarettes under the Resource Conservation and Recovery Act (RCRA). After reviewing your letter, the Agency has concluded that because e-cigarettes include cartridges that are containers of a commercial chemical product, specifically nicotine, e-cigarettes therefore may be regulated as acute hazardous waste P075 when disposed.

Nicotine as the Sole Active Ingredient of E-Liquids

Your letter indicates that the e-liquid in the e-cigarettes consists of a mixture of:

- nicotine (1 - 2.5%)
- flavorings
- propylene glycol
- vegetable glycerin
- polyethylene glycol 400

With respect to the non-nicotine ingredients, you state:

[t]hese are FDA-approved non-toxic liquids, with a slightly sweet taste, which are used in pharmaceuticals and as food additives and preservatives. Vegetable glycerin is a sugar-alcohol compound. Propylene glycol is used as a food preservative and is also commonly used in pharmaceuticals. It is also the solution used to create theatrical smoke. Polyethylene glycol 400 is a similar solution that is used in a variety of pharmaceutical formulations.

Nicotine is a commercial chemical product listed in 40 CFR 261.33(e) and is an acute hazardous waste (EPA waste code P075) when disposed. The term "commercial chemical product," as it applies to the RCRA hazardous waste listings, is defined in the comment under § 261.33(d):

The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in..." refers to a chemical substance which is manufactured or formulated for

commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient.

The EPA has previously interpreted “sole active ingredient” to mean that the active ingredient is the only chemically active component that performs the function of the product.<sup>1</sup> We have also previously stated that preservatives, surfactants,<sup>2</sup> fillers, solvents, propellants,<sup>3</sup> diluents (such as water or saline),<sup>4</sup> colorants and perfumes<sup>5</sup> are not active ingredients because they do not perform the function of the product (i.e., they are inert ingredients). The EPA also finds flavorings and sweeteners to be inert ingredients because they are not performing the function of the product.<sup>6</sup> Thus, the flavorings, propylene glycol, vegetable glycerin, and polyethylene glycol 400 are not active ingredients of the e-liquids you describe, leaving nicotine as the sole active ingredient in the e-liquid. Therefore, nicotine-containing e-liquids are considered P075 acute hazardous waste when discarded.

#### Manufactured Articles

Your letter states:

[i]t appears to me that e-cigarettes are best categorized as ‘manufactured articles,’ and, therefore, should not be regulated as hazardous waste commercial chemical products (‘CCPs’). However, this conclusion is less than certain, and so I am seeking EPA's interpretation.

The EPA disagrees with your conclusion that e-cigarettes are “manufactured articles” under the RCRA regulations, as explained below.

In the preamble to a November 25, 1980 interim final rule (45 FR at 78541), the EPA specifically addressed “manufactured articles” when it clarified what is considered a commercial chemical product under RCRA:

EPA intends that the materials listed in § 261.33 include only those commercial chemical products and manufacturing chemical intermediates that are known by the generic name of the chemicals listed in paragraphs (e) and (f) of that section. Manufactured articles that contain any of the chemicals listed in paragraphs (e) and (f) are rarely, if ever, known by the generic name of the chemical(s) they contain and, therefore, are not covered by the § 261.33 listings. Should the Agency find it necessary to list any manufactured articles as hazardous wastes, it will initiate rulemaking to add these articles to § 261.33.

The preamble discussion identifies batteries and mercury vapor lights as examples of manufactured articles that would not be considered listed hazardous waste commercial chemical products. We have

---

<sup>1</sup> Dellinger to Barkholz, February 18, 2004, RCRA Online #14820; Springer to Murray, November 19, 2003, RCRA Online # 14686.

<sup>2</sup> Barnes to McLaughlin, March 14, 1989, RCRA Online #11405.

<sup>3</sup> Lowrance to Wayland, May 3, 1988, RCRA Online #11348.

<sup>4</sup> Barnes to Geary, April 25, 1988, RCRA Online # 11343.

<sup>5</sup> Clausen to Baltay, May 17, 1985, RCRA Online #12406.

<sup>6</sup> The exception would be if the P- or U-listed product's function was as a sweetener, as it was with saccharin before it was removed from the U-list (U202 was removed from the U-list on December 17, 2010, 75 FR 78918).

also stated that thermometers are manufactured articles and therefore are not considered listed hazardous waste for mercury (U151), although they could exhibit the toxicity characteristic for mercury (D009).<sup>7</sup>

The items we have previously determined to be manufactured articles - batteries, fluorescent lamps and thermometers – are all designed for a purpose other than to access the chemicals that are present in these manufactured articles. Specifically, one uses these articles for electrical energy (batteries), light (lamps) or to measure temperature (thermometers). One does not use these articles in order to access the mercury or lead or other chemicals contained in these articles. In contrast, one uses an e-cigarette specifically to access the nicotine e-liquid. E-cigarettes are intended to achieve exactly that purpose – i.e., to deliver or release the nicotine to the user. Therefore, EPA has concluded that e-cigarettes are not manufactured articles.

#### E-cigarette Cartridges as Containers of a Commercial Chemical Product

You state that "[m]y client intends to make and sell only pre-filled e-cigarettes. Therefore the nicotine solution will be incorporated into the e-cigarette and will not come in a separate cartridge or container."

We have concluded that e-cigarettes are more appropriately considered containers of a commercial chemical product (i.e., nicotine) because they have cartridges (i.e., small containers) that contain the nicotine e-liquid, whether these cartridges are pre-filled in the e-cigarette or come separately. The fact that the cartridge (i.e., container) may already be attached to additional parts of the e-cigarette is not relevant in determining whether it is a container of a commercial chemical product. In fact, e-cigarettes come in a variety of designs, many of which have removable and replaceable pre-filled nicotine cartridges. Other types of e-cigarettes are refilled by the user. E-cigarette cartridges are considered containers of nicotine (RCRA waste code P075), regardless of the style or design of the e-cigarette and regardless of whether the cartridge is integral to or detachable from the e-cigarette.

#### Recycling by Manufacturers and Retailers

Because the nicotine e-liquid is considered a commercial chemical product it is not considered a solid waste under § 261.2 if it is legitimately recycled and therefore is not subject to hazardous waste regulation. See the letter from Johnson to DeMuth (same date as this letter) for additional information about recycling nicotine from e-cigarettes and smoking cessation products.

#### Household Disposal

E-cigarettes that are disposed of by consumers at their residences are considered exempt household hazardous waste under § 261.4(b)(1) and are not subject to regulation as hazardous waste under the federal RCRA hazardous waste regulations. Those who manufacture or sell e-cigarettes out of their residence, however, are not eligible for the household hazardous waste exemption and therefore the e-liquids and e-cigarettes are subject to hazardous waste regulation when disposed.

#### Additional Information

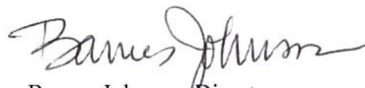
Please note that this letter discusses only how e-cigarettes are regulated under the federal RCRA hazardous waste regulations. Under Section 3006 of RCRA individual states can be authorized to

---

<sup>7</sup> See question and answer dated August 1, 1989, RCRA Online # 13310; and question and answer dated August 1, 1996, RCRA Online #14012.

administer and enforce their own hazardous waste programs in lieu of the federal program. States that are authorized to implement the RCRA program have authority to promulgate regulations that are more stringent than the federal program. You should consult with the appropriate authorized state agency for any site-specific guidance. If you have any questions about the federal hazardous waste regulations discussed in this memo, please contact Kristin Fitzgerald at (703) 308-8286 or [Fitzgerald.Kristin@epa.gov](mailto:Fitzgerald.Kristin@epa.gov).

Sincerely,

A handwritten signature in cursive script that reads "Barnes Johnson".

Barnes Johnson, Director  
Office of Resource Conservation and Recovery