From: Susan Shaw/DC/USEPA/US
To: Harriet Hubbard/DC/USEPA/US@EPA
Cc: Sherri Comerford/DC/USEPA/US@EPA, Jocelyn Briskin/DC/USEPA/US@EPA, Patricia Hall/DC/USEPA/US@EPA
Date: 10/31/2008 10:58 AM
Subject: complaints about chloramine in SDWA hotline reports?

Hi Harriet,
We are still looking for information on whether there have been complaints about health problems thought by the caller to be linked to the use of chloramine. Do you have any information on the subject from the Hotline in the past 3 years? I don't think we need to go back any further; however, if it is not difficult to check, going back further would be better.

Chloramination has been used for decades and 100's of thousands of people receive chloraminated water, so it would be interesting to know the level of complaints, if any, received by the hotline. Depending on the response, we might want to dig a little deeper to see if complaints originate from communities that had just switched to chloramination or from communities that have had chloramine for a long time. I suspect it would be the former.

I hope you can help us out on this question. I would appreciate it if you would let me know what is
possible and by when. Let me know if you like more information on the question.

Susan
564-5284
Hi Pam,

Darryl called from ASDWA this am. He would like to know if we have any materials for the background notebook he is assembling for the ASDWA meeting next week. If so, he would like to get the document asap.

I check with Veronica, and she is ok with this attachment. I wanted to make sure it was ok with you before I sent anything. I plan to send the same information to Steve Hogye for the regional branch chiefs. (Steve's deadline is 3/12).

Let me know if you need additional information.

Jeanne

Chloramines in Drinking Water 030909.doc
Hello,

We'd like to get your input as we draft a response to the attached controlled correspondence. In a nutshell, Vermonters for a Clean Environment request the Administrator to put "the Stage 2 rules on hold pending resolution of the public health and safety issue raised by the use of chloramine and EPA's support of it". They urge us to "ensure that stimulus funds not be used to support" installation of chloramine, "but for technologies such as enhanced filtration" and pipe system updates.

Jocelyn Keehner will be taking the lead on this correspondence. Please let me know who we should work with to develop the response.

thanks,

Jeanne

----- Forwarded by Jeanne Briskin/DC/USEPA/US on 03/20/2009 10:19 AM ----- 

From: Veronica Blette/DC/USEPA/US
To: Jeanne Briskin/DC/USEPA/US@EPA
Cc: Keara Moore/DC/USEPA/US@EPA
Patricia Hall/DC/USEPA/US@EPA
Date: 03/20/2009 09:35 AM
Subject: Incoming CMS from VT group on chloramine

Jeanne,

We need to prepare a response to this for Mike Shapiro's signature.

Due date is 3/30. We should try to have to Cynthia by 3/27. When you have a version that has been approved by Pam, please provide an e-copy to Keara. I'll work with her to get it loaded into CMS and routed through Cynthia to the front office.

Thanks.

- 09-000-3562.pdf

***************

Veronica Blette
WaterSense Program
EPA Office of Wastewater Management
phone: 202-564-4094
Greetings To All

There is a situation in VT that has required our extensive attention - and now requires our full support. Here's the story:

~ Champlain Water District in South Burlington VT switched to chloramines (from chlorine) as a secondary disinfectant in order to meet EPA's new Stage 1 and Stage 2 Disinfection Byproducts Rules.

~ Since that time, over the course of three years, two citizen advocacy groups have alleged that a number of people (< 100) served by the system have shown a variety of health effects such as rashes, respiratory, stomach ailments, asthma etc.
~ In view of the citizens' complaints, the state legislature has come very close to banning chloramines across VT. Chloramines is a very effective secondary disinfectant. Without this option, Champlain Water District will be forced to return to chlorine - thus increasing 68,000 citizens to higher cancer risk from regulated disinfectant byproducts.

~ EPA has been very active including funding facilitation services for a local workgroup; providing technical assistance; producing message mapping, and participating in numerous regional, state, and local meetings.

~ (Outside of the Champlain Water District) there are more than 12 public water supply systems that are currently serving water with elevated disinfection byproducts (in violation of Stage 1 DBP Rule). Some of these systems are small systems with very high levels of DBPs.

~ Recently the VT legislature passed a bill which called for EPA support for engineering evaluations of these systems to determine what options are feasible and at what cost. This was done in lieu of the chloramine moratorium. Because of the poor state economy, the commissioner of VT DEC had asked for EPA to support such studies.

~ Preliminary engineering studies of about 12-14 systems may cost ~$200K (rough estimate).

~ These evaluations would go a long way towards understanding the pathway to compliance for key new DW rules, address critical request of state primacy agency, provide key info to citizens groups and legislators, and advance the cause to reduce the exposure to elevated DBPs levels in more than a dozen communities in VT.

Can you help me find some funds to support this effort. Let me know any ideas, thoughts or questions.

Thanks
Jane
Response to #4

Human health and animal data were considered, as well as other factors for setting the standard for monochloramine. Monochloramine has undergone a complete scientific review and approval process and is summarized in EPA's Criteria Document for Chloramines. EPA also considered the historical use of monochloramine. Large populations have been using monochloramine as a drinking water disinfectant for decades. Monochloramine has also been shown to an effective disinfectant based on decades of use in the U.S., Canada, and Britain.

EPA continues to research the byproducts formed by monochloramine. To date, this research supports the continuing use of monochloramine. EPA must act to protect health even in the face of uncertainties. Allowing the use of monochloramine, addresses the know risk posed by chlorinated disinfection byproducts
Do you mean beth doyle? Unless you're talking about another person, I don't think beth hall in our office knows anything about this.

I have answers to the Q about the plewa study from earlier inquiries.

********
Veronica Blette
Special Assistant to the Director
Office of Ground Water & Drinking Water
Jeanne Briskin

----- Forwarded by Patricia Hall/DC/USEPA/US on 02/18/2009 12:44 PM -----

From: Jeanne Briskin/DC/USEPA/US
To: Veronica Blette/DC/USEPA/US
Cc: Patricia Hall/DC/USEPA/US@EPA, Thomas Grubbs/DC/USEPA/US@EPA
Date: 06/24/2008 11:54 AM
Subject: Re: Fw: MEDIA - Drinking water questions ACTION; OW / Reg 3 / NERL - NOON deadline Tue

trish is incorporating a few changes. Overall looks great.
Veronica Blette/DC/USEPA/US

Revised to add in this. please let me know ASAP if you're comfortable with them and I'll forward them on. thanks for the quick response.
Response to #5

5. Is there a higher risk to infants and those with suppressed immune systems because chloramine is less effective with killing pathogens so does EPA recommend any further precautions for these populations?

Monochloramine is an effective disinfectant but it takes longer than chlorine to kill or inactivate disease-causing organisms. This makes it impractical for many systems to use as a primary disinfectant because the treated water would require a long holding time at the water treatment plant before entering the distribution system to ensure disinfection. However, it is commonly used as a secondary disinfectant to protect treated water as it travels through pipes from the water treatment plant to customers. Monochloramine is more stable than chlorine and provides long-lasting protection. In addition, monochloramine has been shown to be more effective than chlorine at killing certain disease-causing organisms found in pipes such as those that cause Legionnaire’s diseases.

Regardless of the disinfectant used, some people may be more vulnerable to contaminants in drinking water than the general population. People with severely compromised immune systems, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

Veronica Blette/DC/USEPA/US

Veronica Blette
Special Assistant to the Director
Office of Ground Water & Drinking Water

Jeanne Briskin

----- Original Message -----
You can try asking Rose, though I think she's really busy these days. I think the main point of the Richardson-Plewa study may be that it screens in vitro using one assay, and does not provide definitive information on the toxicity. Beth Hall could also be helpful. (I'm not sure that any of the questions address any epi studies... they are all toxicology based.) I have a little time if you want to stop by before 9 and I can help you sketch out some responses if you think it would be helpful.

Jeanne
Patricia Hall/DC/USEPA/US

I can try working on the more general questions. Rose was the expert on the Epi studies. I don't know enough about them to respond to those specific questions. Would it possible to ask her for help? The only other person that may be able to help would be Michael Wright in Cinci.

Veronica Blette/DC/USEPA/US

do you want to take a crack at drafting answers? Let me know ASAP yes or no (noting the noon Tuesday deadline).

rather than pulling bullets from the message maps (assuming you use them), please convert them into complete sentences so that they flow better.

please remember that this paper is from the region where they are questioning conversion to Clm.

***************

Veronica Blette
Special Assistant to the Director
EPA Office of Ground Water and Drinking Water
phone: 202-564-4094

----- Forwarded by Veronica Blette/DC/USEPA/US on 06/23/2008 05:05 PM -----
Hi Folks,
Region 3 referred this inquiry to ORD, but after talking with the reporter from the Patriot News, I think there's a little bit of this inquiry for everyone... although I am thinking the questions are more in OW's court!

**** Please "call" the questions you (your office) will answer to help navigate this request quickly... *****

The deadline is tomorrow, Tuesday @ noon.

Our ORD researcher, Dr. Susan Richardson (expert on disinfection by products) is out of the office this week (am cc'ing in the event she is on business travel and can access email). Have left a voicemail for Dr. Audrey Levine, our National Program Director for Drinking Water and she's cc'd on this email too.

Ellen Lyons with the (Harrisburg) Patriot News 717 255 8167  Ellen's email: elyon@pnco.com

The questions:

1. Understand that EPA wants water companies to reduce the chlorine by products by 2012, so lots of systems are switching to chloramine, a local citizen's group that has been formed, they cite they study by Richardson et. al., that some of the unregulated by-products from chloramine are more toxic than those of chlorine.
2. Is there any plan afoot to begin regulating chloramine by products. Ellen says 2 by products were on a list (n-nitrosamines and hydrazine) asks us to confirm if in fact EPA is looking to regulate those chloramine by products? Will the agency move to do the same thing with chloramine as chlorine?
4. Broader question, critics saying EPA has not studied very little chloramine so EPA should not be suggesting that folks switch without knowing much about it?

5. Is there a higher risk to infants and those with suppressed immune systems because chloramine is less effective with killing pathogens so does EPA recommend any further precautions for these populations?

méis

Melissa Anley-Mills
ORD News Director
US Environmental Protection Agency
www.epa.gov

telephone: 202.564.5179
blackberry/mobile: 202.664.7272
anley-mills.melissa@epa.gov
1. Understand that EPA wants water companies to reduce the chlorine byproducts by 2012, so lots of systems are switching to chloramine, a local citizen's group that has been formed, they cite they study by Richardson et al., that some of the unregulated by-products from chloramine are more toxic than those of chlorine.

EPA released the Stage 2 Disinfection/Disinfectants Byproducts Rule in January 2006. [Info at http://www.epa.gov/safewater/disinfection/stage2/index.html]. The compliance dates for the regulation vary by system size, but systems serving more than 50,000 have to begin complying with new monitoring requirements by 2012 (smaller systems get until 2013). EPA does not require systems to use chloramines to comply with disinfection byproduct regulations. The choice of drinking water treatment is influenced by many factors and will vary by water utility.

Disinfectants are an essential element of drinking water treatment because of the barrier they provide against waterborne disease-causing microorganisms. Disinfection byproducts (DBPs) form when disinfectants used to treat drinking water react with naturally occurring materials in the water (e.g., decomposing plant material).

EPA regulates two groups of disinfectant byproducts: Total trihalomethanes (TTHMs - chloroform, bromoform, bromodichloromethane, and dibromochloromethane) and haloacetic acids (HAA5s - monochloro-, dichloro-, trichloro-, monobromo-, dibromo-). These are widely occurring classes of DBPs formed during disinfection with chlorine and chloramine. The amount of trihalomethanes and haloacetic acids in drinking water can change from day-to-day, depending on the season, water temperature, amount of disinfectant added, the amount of plant material in the water, and a variety of other factors.

One method systems can use to comply with new disinfectant byproduct regulations is to change the disinfectant used to protect water as it travels through the pipes from the treatment plant to the customer. Many systems will continue to use chlorine as their primary disinfectant but will switch to monochloramine as a secondary disinfectant to protect the water in the distribution system. Monochloramine has been used as a drinking water disinfectant for more than 90 years. Monochloramine is more stable than chlorine and provides long-lasting protection as it does not break down quickly in the distribution system. Because monochloramine is more stable, it is less likely to react with natural organic material in the water and results in lower levels of regulated disinfection byproducts.

EPA acknowledges that there are other types of disinfection byproducts in disinfected water - some of which are known and some of which are still unidentified. TTHMs and HAAs typically occur at higher levels than other known and unknown disinfectant byproducts. The presence of TTHMs and HAA5 is representative of the occurrence of many other chlorinated disinfectant byproducts; thus, a reduction in TTHMs and HAA5
generally indicates a reduction of other types of disinfectant byproducts from chlorination.

Allowing the use of monochloramine addresses the known risk posed by chlorinated disinfection byproducts. Congress has ordered EPA to act to protect human health from known threats, even when there is incomplete information. While EPA continues to research the byproducts formed by monochloramine, to date, this research supports the continuing use of monochloramine.

Like all disinfectant byproducts, the types and levels of byproducts formed when using monochloramine will vary for each utility and also from day-to-day. One of the most important factors regarding the types of disinfection byproducts formed is the composition of the natural organic matter in the water and this will vary greatly for each utility.

2. Is there any plan afoot to begin regulating chloramine byproducts? Ellen says 2 byproducts were on a list (N-nitrosamines and hydrazine), asks us to confirm if in fact EPA is looking to regulate those chloramine byproducts? Will the agency move to do the same thing with chloramine as chlorine?

At this time there are no specific plans to begin regulating specific types of monochloramine byproducts. The Agency routinely evaluates and identifies contaminants that may require regulation and publishes those contaminants on a drinking water Contaminant Candidate List (CCL) every 5 years. In February, we published a draft list of 104 contaminants for the third CCL. This draft list includes N-nitrosamines and hydrazine. The drinking water CCL is a list developed by EPA that identifies priority contaminants for regulatory decision making and information collection. The contaminants on the list are known or anticipated to occur in public water systems and may impact public health. However, they are currently unregulated by existing national primary drinking water regulations. Publishing the CCL does not impose any requirements on public water systems. More information about the list is available at www.epa.gov/safewater/ccl/ccl3.html.

The Agency also has an unregulated contaminant monitoring program to help collect occurrence data in order to help us determine if a contaminant should be regulated. The second round of monitoring for 25 contaminants is currently underway, with samples being collected between 2008 and 2010. As part of this monitoring round, occurrence information is being collected for 6 types of nitrosamines. More information on this program is available at http://www.epa.gov/safewater/ucmr/ucmr2/index.html.

While the Plewa study is interesting, and warrants further study, we believe that the current body of scientific knowledge does not point to an increased risk from these disinfection byproducts (DBPs).

No conclusions can be made about the possible risk to humans posed by exposure to these byproducts in particular or by consumption of drinking water disinfected with chloramines. The iodoacetic acids appear to be more potent in the cell culture tests than other DBPs that have been studied in similar systems. However, this research is preliminary in that tests conducted in vitro (i.e., in cells) need to be confirmed in animals before conclusions can be made concerning human health risks.

EPA is conducting additional studies to obtain quantitative information on the occurrence of the iodoacetic acids, particularly in chlorinated drinking water. Research is being planned to further evaluate the health effects in animals that may be associated with exposure to these and other DBPs of potential concern.

4. Broader question, critics saying EPA has not/ studied very little chloramine so EPA should not be suggesting that folks switch without knowing much about it?

When setting the standard for monochloramine, EPA considered human health and animal data as well as other factors. Monochloramine has undergone a complete scientific review which is summarized in EPA’s Criteria Document for Chloramines. EPA also considered the historical use of monochloramine. Large populations have been using monochloramine as a drinking water disinfectant for decades. Monochloramine has also been shown to an effective disinfectant based on decades of use in the U.S., Canada, and Britain.

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No conclusions can be made about the possible risk to humans posed by exposure to these byproducts in particular or by consumption of drinking water disinfected with chloramines. The iodoacetic acids appear to be more potent in the cell culture tests than other DBPs that have been studied in similar systems. However, this research is preliminary in that tests conducted in vitro (i.e., in cells) need to be confirmed in animals before conclusions can be made concerning human health risks. Additionally, little is known about what levels of iodoacetic acids may be found in drinking water systems or what conditions are needed for formation of these byproducts.

EPA is conducting additional studies to obtain quantitative information on the occurrence of the iodoacetic acids, particularly in chlorinated drinking water. Research is being planned to further evaluate the health effects in animals that may be associated with exposure to these and other DBPs of potential concern.

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Regardless of the disinfectant used, some people may be more vulnerable to contaminants in drinking water than the general population. People with severely compromised immune systems, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.
Hi Crystal,

Sorry I thought I included you on this email when I sent it out yesterday evening, I did manage to trim it down to one page.

Jeremy,
Here is the chloramine transition factsheet, please let me know if/when there are any changes that need to be made (formatting etc).

[Attached file]

Think it looks great. I used Trish's version and made some minor edits.

Patricia Hall/DC/USEPA/US
I think it looks great. I just made a few minor changes:

Chloramine~transition~factsheet1029irish.doc
Jocelyn Keehner/DC/USEPA/US

Hi all,
I went through the fact sheet after talking with Jeanne and looking at her comments and I made some major cuts (it is now under a page)
here is the new version
I need to try to get this to Jeremy by tomorrow morning

Thanks! Chloramine~transition~factsheet1029change.doc
**Chloramines Risk Communication** - EPA is releasing unified and understandable information to answer frequently asked questions regarding benefits and risks of use of chloramine as a drinking water disinfectant.

**What is chloramination?**
- Chloramination is a disinfection process used by many large drinking water utilities to provide stable water quality in the pipes of the distribution system.
- Monochloramine is typically formed in drinking water by adding ammonia to treated chlorinated water before the water leaves the treatment plant and enters the distribution system.

**History.**
- The Stage 1 and 2 Disinfection Byproduct Rules (DBPR) (1998 and 2005), require reduction of four trihalomethane and five haloacetic acid disinfection byproducts, (DBPs) and set limits for the amount of disinfectant residuals in drinking water. Although EPA does not require the change to monochloramine, some water systems are choosing to use monochloramine to maintain disinfectant residuals throughout the distribution system and to meet the DBPR at the same time.
- Monochloramine has been used effectively for decades as a disinfectant in major US cities including Philadelphia and Denver.

**What are the issues?**
- Groups in Vermont, California and Pennsylvania have raised concerns about the safety of monochloramine use in water after experiencing rashes and respiratory problems.
- The advantages of using monochloramine include: 1) it produces lower levels of regulated disinfectant byproducts that have been linked to bladder cancer and other adverse health effects than chlorine. 2) it is less reactive than chlorine and so it provides longer lasting protection of treated water in the distribution system, 3) it may be better than chlorine at controlling *Legionella* (which causes Legionnaire’s disease), and 4) it is more affordable than other alternative treatment processes.
- The disadvantages of chloramine use include: 1) monochloramine requires careful attention to treatment operation guidelines including close monitoring of water quality in order to avoid lead leaching or nitrate formation 2) compared to chlorine, monochloramine may produce higher concentrations of unregulated disinfection byproducts with unknown health effects.

**Current Status and Next Steps**
- EPA, with input from ORD, and other peer reviewers including risk communication expert Vincent Covello PhD, developed a series of Q&As that provide information on chloramine in simple language and address issues raised by the concerned public. Following review by EPA Regions, we will post them on EPA’s website. The Q&As will be published in the form of a booklet with distribution to EPA regions, states and water associations. In addition, EPA will publish a factsheet on chloramine for drinking water professionals that will be distributed to EPA, States and water utilities and posted online.
- The Criteria Document for Chloramines describes the process and information EPA used to set the health standard for monochloramine use. It is currently being updated by the Office of Science and Technology.
- EPA will continue to track new published research on health effects associated with chloramination and chlorination.
April 29, 2009

Jeanne,

I got the Q & A to Eric Bissonette this morning. Fortunately, Eric had submitted the short version answer on our behalf yesterday.

I made a few revisions to the version you provided to me and emailed it on to Eric & Tiffany.

-Phil-

contains link to chloramine Q&As on the web. FYI, Eric has indicated that to meet his 5 pm deadline that he would appreciate getting the document by 4:30.
Here is a draft Q&A in response to Eric's request. The background section in the current draft is a little redundant with the answer section, but that repetition allows the background section to be read and understood as a standalone piece. Thanks to Sean and Trish for pulling this together on short notice.

Jeanne

---

----- Forwarded by Eric Bissonnette/Ci/USEPA/US on 04/28/2009 09:12 AM -----  
From: Eric Bissonnette/Ci/USEPA/US  
To: Phil Oshida/DC/USEPA/US@EPA  
Cc: Tiffany Disrud/DC/USEPA/US@EPA  
Date: 04/28/2009 07:40 AM  
Subject: OW wants a chloramine Q&A for Mr. Silva

Phil - OW wants a set of chloramine Q&As for Mr. Silva. unfortunately they want it today. Would you please prepare a fact sheet in the Question, Answer and background format similar to the other Q&As. We expect a chloramine question to come from Boxer. The reason we want two versions (one is really a subset of the other) is that we need one for his confirmation hearing and a more indepth one for his book. (Tiffany will clarify)

sorry - call me if you have any questions about this

Chloramines Q & As. 4-29-09.doc

----- Forwarded by Jocelyn Keehner/DC/USEPA/US on 11/04/2009 06:01 PM -----  
From: Jeanne Briskin/DC/USEPA/US
To: Jocelyn Keehner/DC/USEPA/US@EPA  
Date: 10/27/2009 02:50 PM  
Subject: Fw: OW wants a chloramine Q&A for Mr. Silva today!!

----- Forwarded by Jeanne Briskin/DC/USEPA/US on 10/27/2009 02:50 PM -----  

From: Patricia Hall/DC/USEPA/US  
To: Jeanne Briskin/DC/USEPA/US@EPA  
Cc: Sean Conley/DC/USEPA/US@EPA  
Date: 04/28/2009 03:06 PM  
Subject: Fw: OW wants a chloramine Q&A for Mr. Silva today!!

Here is the first cut:

Conf Hearing chloramines fact sheet 042709.doc

I didn't update anything under "citizen issues" and the response from Regions. You may want to add something about what they are currently doing..

----- Forwarded by Patricia Hall/DC/USEPA/US on 04/28/2009 03:00 PM -----  

From: Eric Bissonnette/CI/USEPA/US  
To: Jeanne Briskin/DC/USEPA/US@EPA  
Cc: Patricia Hall/DC/USEPA/US@EPA, Tiffany Disrud/DC/USEPA/US@EPA, Sean Conley/DC/USEPA/US@EPA  
Date: 04/28/2009 02:01 PM  
Subject: Re: Fw: OW wants a chloramine Q&A for Mr. Silva today!!

Are you coordinating with Sean cause the budget hearing fact he sent for FY09 seemed a good place to be working from. Boxer's chloramine issue is more about the Vermont issue not the message mapping issue. I have to review this and send it up at 5ish so please it to me at 4:30.

Jeanne Briskin  
We're working to provide a slightly revised Q&A l...  
04/28/2009 01:51:47 PM

From: Jeanne Briskin/DC/USEPA/US  
To: Eric Bissonnette/CI/USEPA/US@EPA  
Cc: Tiffany Disrud/DC/USEPA/US@EPA, Patricia Hall/DC/USEPA/US@EPA  
Date: 04/28/2009 01:51 PM  
Subject: Re: Fw: OW wants a chloramine Q&A for Mr. Silva today!!

We're working to provide a slightly revised Q&A that is more focused on the issues around chloramine use rather than on the message maps. What is COB today for you?

----- Forwarded by Jocelyn Keehner/DC/USEPA/US on 11/04/2009 06:01 PM -----  

From: Jeanne Briskin/DC/USEPA/US  
To: Jocelyn Keehner/DC/USEPA/US@EPA  
Date: 10/27/2009 02:51 PM  
Subject: Fw: Chloramine Q&A for Mr. Silva today!!
From: Sean Conley/DC/USEPA/US
To: Eric Biss~~~~~~/CI/USEPA/US@EPA
Cc: Jeanne Briskin/DC/USEPA/US@EPA, Patricia Hall/DC/USEPA/US@EPA
Date: 04/28/2009 12:07 PM
Subject: Chloramine Q&A for Mr. Silva today!!

Two options provided, something I pulled together from the web site, something Trish had from a budget hearing last year. Both are attached. The budget hearing fact sheet could be updated regarding citizen groups and state/utility actions, and regarding the message map now on the web.

Chloramines message map Q&A 4-28-09.doc FY09 budget hearings chloramines fact sheet 011408.doc

Sean P. Conley
Acting Associate Branch Chief
Standards and Risk Reduction Branch
EPA, Office of Water, Ground Water and Drinking Water
202-564-1781

From: Jeanne Briskin/DC/USEPA/US
To: Jocelyn Keehner/DC/USEPA/US@EPA
Date: 10/29/2009 01:07 PM
Subject: Fw: Prep for Silva's mtg w/ House Energy and Commerce: chloramine Q&A

From: Jeanne Briskin/DC/USEPA/US
To: Jeanne Briskin/DC/USEPA/US@EPA
Date: 08/19/2009 08:28 AM
Subject: Fw: Prep for Silva's mtg w/ House Energy and Commerce: chloramine Q&A

From: Jeanne Briskin/DC/USEPA/US
To: Pamela Barr/DC/USEPA/US@EPA, Phil Oshida/DC/USEPA/US@EPA
Cc: Crystal Rodgers-Jenkins/DC/USEPA/US@EPA, Eric Burneson/DC/USEPA/US@EPA, Wynne Miller/DC/USEPA/US@EPA, Gregory Carroll/CI/USEPA/US@EPA, Sandhya Parshionkar/CI/USEPA/US@EPA
Date: 08/19/2009 08:13 AM
Subject: Prep for Silva's mtg w/ House Energy and Commerce: chloramine Q&A

Here is the chloramine Q&A that we provided to OW in April to support of Pete Silva's confirmation hearing.

Conf Hearing chloramines fact sheet 042709 jb.doc
Chloramines Message Map

QUESTION: What is the status of the EPA message map to provide information to consumers who are concerned regarding Chloramines in drinking water?

ANSWER:
- In order to address questions that have been raised by consumers about possible health effects, EPA scientists and experts have answered 29 of the most frequently asked questions about chloramines.
- EPA also worked with a risk communication expert to help us organize complex information and make it easier for us to express current knowledge.
- These questions and answers are posted on the EPA Office of Ground Water and Drinking Water web site at http://www.epa.gov/safewater/disinfection/chloramine/#one.

Background
- Chloramines are disinfectants used to treat drinking water. Chloramines are most commonly formed when ammonia is added to chlorine to treat drinking water. Chloramines have been used by water utilities for almost 90 years, and their use is closely regulated. Water that contains chloramines and meets EPA regulatory standards is safe to use for drinking, cooking, bathing and other household uses.
- The typical purpose of chloramines is to provide longer-lasting water treatment as the water moves through pipes to consumers. This type of disinfection is known as secondary disinfection. Many utilities use chlorine as their secondary disinfectant; however, in recent years, some of them changed their secondary disinfectant to chloramines to meet disinfection byproduct regulations.
- More than one in five Americans uses drinking water treated with chloramines.
- EPA has responded to numerous consumer questions regarding reported negative effects from exposure to drinking water that contains chloramines, such as skin, breathing, and digestive problems, and long term health effects such as cancer.
- EPA believes that available data support the use of chloramines in drinking water to protect public health. EPA's regulatory standard for chloramines provides a wide margin of safety to offset any uncertainties in risk assessments.
- CDC's investigation of reports of skin, breathing or digestive problems associated with chloramines in drinking water use was unable to draw any conclusions about health effects.
Public Water Systems Using Chloramines as a Disinfectant

QUESTION: Some public water supply systems are switching from chlorine to chloramines (as a secondary disinfectant) to comply with EPA’s disinfection byproduct (DBP) rule. Is this safe?

ANSWER:

- Water that contains chloramines and meets EPA regulatory standards is safe to use for drinking, cooking, bathing and other household uses.

- Chloramines have been used safely by many communities for decades. More than one in five Americans uses drinking water treated with chloramines.

- EPA published a standard for chloramines in 1998 that is based on the best available science (Minimal Residual Disinfectant Level = 4 parts per million). The standard is set a level where no human health effects are expected to occur.

- The disinfection byproducts rule did not require water systems to switch to chloramines in order to comply, although some have chosen to do so.

- EPA continues to look at new science that emerges on chloramines and has recently updated the criteria document for chloramines to include new studies. The updated criteria document continues to support the current chloramines standard.

- Compared to chlorine, water treated with chloramines contains fewer regulated disinfection byproducts that have been linked to human health problems.
  - Compared to water treated with chlorine, water treated with chloramines may contain higher concentrations of unregulated disinfection byproducts.
  - EPA scientists are currently studying the unregulated disinfection byproducts that form in water treated with chloramines.

BACKGROUND:

- Chloramines are disinfectants used to treat drinking water. Chloramines are most commonly formed when ammonia is added to chlorine to treat drinking water. The typical purpose of chloramines is to provide longer-lasting water treatment as the water moves through pipes to consumers. This type of disinfection is known as secondary disinfection.

- Chloramines have been used by water utilities for almost 90 years, and their use is closely regulated. More than one in five Americans uses drinking water treated with chloramines. Water that contains chloramines and meets EPA regulatory standards is safe to use for drinking, cooking, bathing and other household uses.
Many utilities use chlorine as their secondary disinfectant; however, in recent years, some of them changed their secondary disinfectant to chloramines to meet disinfection byproduct regulations.

- As EPA has lowered acceptable levels of disinfection byproducts in drinking water, systems have switched to chloramines for disinfection because it decreases the level of regulated disinfection byproducts.
  - EPA does not require systems to use chloramines or any specific treatment process.

- Compared to chlorine, water treated with chloramines contains fewer regulated disinfection byproducts that have been linked to human health problems.
  - Compared to water treated with chlorine, water treated with chloramines may contain higher concentrations of unregulated disinfection byproducts.
  - EPA scientists are currently studying the unregulated disinfection byproducts that form in water treated with chloramines.

- As the use of chloramines has increased, two issues have emerged:
  - A small number of citizen groups have raised issues about health effects such as skin and respiratory problems and the unregulated byproducts associated with chloramines. Chloramines studies have not focused on these health endpoints. A long history of usage (since the 1930's) and the few existing studies do not indicate that these irritations are issues associated with chloramines at the level at which the public is exposed via drinking water.
  - Simultaneous compliance issues have been raised because there is the potential for lead corrosion and nitrification during a switch to chloramines. However, utilities can adjust their treatment processes to control for these issues.

- Citizens groups have formed in Vermont, California, and Pennsylvania to protest their utility's switch to chloramines. Vermont Department of Health and Department of Environmental Conservation have hosted EPA Region 1 and HQ, CDC, state and local legislators, water systems, and interested public to discuss chloramines issues in Vermont in different meetings during September and October 2007. Region 1 will continue to coordinate with the Vermont Department of Environmental Conservation, the system (Champlain Water District), and the citizens group to further discussions relative to the issue. Additionally, Region 9 for California and Region 3 for Pennsylvania have participated in meetings about chloramines in their regions and will continue to coordinate with all stakeholders.

ACCOMPLISHMENTS:
In May 2007, EPA released the final Simultaneous Compliance Guidance Manual. This document provides guidance to States and water systems on how to evaluate the potential impacts of treatment changes upon drinking water quality. The guidance also recommends steps systems can take to avoid or minimize any negative impacts on water quality. As part of the finalization process, EPA evaluated comments received on a draft version that was released in August 2006.

In March 2009, EPA updated the chloramines question and answer document on its website to further public understanding and assist water systems and States in communication about chloramines. The question and answer format takes a step-wise approach to communicate complex information to a wide variety of consumers who may have different educational backgrounds or interest in this topic. The Q&As provide answers to commonly asked questions and addresses chloramine basics, disinfection byproducts, and health questions. It also provides links to more technical information. The questions and answers may be found at:
http://www.epa.gov/safewater/disinfection/chloramine/

EPA is in the process of updating the chloramines criteria document. The document is undergoing final review in OW now. The draft final document concludes that “In humans, no health effects appear to be associated with levels of residual chloramines typically found in drinking water.”

The Agency has made chloramines disinfection byproducts research a priority and EPA scientists are currently studying many unregulated disinfection byproducts.
Public Water Systems Using Chloramines as a Disinfectant

QUESTION: Systems are switching from chlorine to chloramines to comply with EPA’s disinfection byproduct (DBP) rules. Is this safe?

ANSWER:
- Chloramines have been used safely by many communities for decades. Over 68 million people in the U.S. drink water disinfected with chloramines.
- EPA published a standard for chloramines in 1998 that is based on the best available science (Minimal Residual Disinfectant Level = 4 parts per million). Drinking water that meets this standard is associated with little to no risk with respect to chloramines.
- The disinfection byproducts rule did not require water systems to switch to chloramines in order to comply, although some have chosen to do so.
- EPA continues to look at new science that emerges on chloramines and will update the criteria document for chloramines to include review of new studies.

BACKGROUND:
- As EPA has lowered acceptable levels of disinfection byproducts in drinking water, systems have switched to chloramines for disinfection because it decreases the level of regulated disinfection byproducts and is a cheap, easy-to-use technology.
- As the use of chloramines has increased, two issues have emerged:
  1. A small number of citizen groups have raised issues about health effects such as skin and respiratory problems. Chloramine studies have not focused on these health endpoints. A long history of usage (since the 1930’s) and the few existing studies do not indicate that these irritations are issues associated with chloramines at the level at which the public is exposed via drinking water.
  2. Simultaneous compliance issues have been raised because there is the potential for lead corrosion and nitrification during a switch to chloramines.
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- In June 2007, EPA released over the internet a question and answer document to further public understanding and assist water systems and States in communication about chloramines and potential risks. This fact sheet provides answers to commonly asked questions and addresses chloramine basics, disinfection byproducts, chloramine health, and resources to learn more.

- EPA is developing additional key chloramine risk communication messages for the Agency to use when communicating to States, utilities, the public, and press.
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QUESTION: Some public water supply systems are switching from chlorine to chloramines (as a secondary disinfectant) to comply with EPA’s disinfection byproduct (DBP) rule. Is this safe?

ANSWER:

- Water that contains chloramines and meets EPA regulatory standards is safe to use for drinking, cooking, bathing and other household uses.
- Chloramines have been used safely by many communities for decades. More than one in five Americans uses drinking water treated with chloramines.
- EPA published a standard for chloramines in 1998 that is based on the best available science (Minimal Residual Disinfectant Level = 4 parts per million). The standard is set at a level where no human health effects are expected to occur.
- The disinfection byproducts rule did not require water systems to switch to chloramines in order to comply, although some have chosen to do so.
- EPA continues to look at new science that emerges on chloramines and has recently updated the criteria document for chloramines to include new studies. The updated criteria document continues to support the current chloramines standard.
- Compared to chlorine, water treated with chloramines contains fewer regulated disinfection byproducts that have been linked to human health problems.
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- Chloramines have been used by water utilities for almost 90 years, and their use is closely regulated. More than one in five Americans uses drinking water treated with
chloramines. Water that contains chloramines and meets EPA regulatory standards is safe to use for drinking, cooking, bathing and other household uses.

- Many utilities use chlorine as their secondary disinfectant; however, in recent years, some of them changed their secondary disinfectant to chloramines to meet disinfection byproduct regulations.

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The Agency has made chloramines disinfection byproducts research a priority and EPA scientists are currently studying many unregulated disinfection byproducts.
Anemia is a condition where there is a lower than normal number of red blood cells in the blood, usually measured by a decrease in the amount of hemoglobin. Hemoglobin is the oxygen-carrying part of red blood cells. It gives these blood cells their red color.

The disinfectants that may cause anemia at levels above the maximum contaminant level are:

From EPA website under the heading Disinfectants: http://www.epa.gov/ogwdw/hfacts.html

**Chloramine.** Some people who use drinking water containing chloramines well in excess of EPA's standard could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of EPA's standard could experience stomach discomfort or anemia.

**Chlorine Dioxide.** Some infants and young children who drink water containing chlorine dioxide in excess of EPA's standard could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of EPA's standard. Some people may experience anemia.
Chloramine Efforts

December 21, 2007

Described below is an example from our office and Regional offices of an effort taken to anticipate, prevent, and manage environmental issues and conflicts that did not use assistance of a third party and did not involve a written agreement.

Chloramine is a disinfectant that is gaining popularity in use throughout the US by utilities as a secondary disinfectant to maintain a residual disinfectant as drinking water is distributed to customers' homes. Although it has been used by some drinking water utilities since the 1930's, more systems have switched in recent years as chloramine helps to reduce regulated disinfection byproducts from the Stage 1 and Stage 2 DBP Rules.

Advocacy groups exist that are against the use of chloramines. These groups and individual customers using chloramines have voiced concerns and question the safety of this chemical. EPA has done a number of things to address concerns and also provide information proactively to information that has been said by various parties. EPA Regional offices have been engaged in public meetings to listen to public citizens and advocacy groups about their concerns and offer EPA viewpoints in California (R9), Vermont (R1), and Pennsylvania (R3). These Regional offices also have been in contact with and answered questions for state health and environmental agencies as these state agencies work to define their beliefs on this issue. Region 9 developed a webpage on the use and safety of chloramines. OGWDW also did internet outreach in the form of an extensive chloramine Q&A webpage, which was published in July 2007. Additionally, OGWDW has responded to or assisted Regional offices in responding to letters from Congresspersons, State agencies, and public citizens.

OGWDW and the Regional offices continue to coordinate with each other, and OGWDW has follow-up activities planned for 2008, including holding an EPA meeting to discuss communication strategies, development of key messages on chloramines, and doing a full examination of its communication efforts to present to see how the Agency can improve outreach and communication into the future.