

Consumer Feedback Focus Group Results

EPA held eight focus groups (with nine to ten participants in each group) and 32 one-on-one interviews during the months of April and May, 1998. Residents of Alpharetta, GA, Tacoma, WA, Sioux City, SD, and Washington, DC, participated in the groups. A contractor selected participants at random via telephone, and offered them an incentive to participate. Active environmentalists, public officials, those with more than two years of college education, and any relatives of water industry employees did not participate, to ensure the groups would be representative of the general public, Macro, International facilitated the groups.

Results:

Consumers' Attitudes and Perceptions About Drinking Water Safety Information

Focus Group Report

Submitted to:

Environmental Protection Agency
Office of Ground and Drinking Water

Submitted by:

Macro International, Inc.

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Executive Summary

I. Executive Summary

The Environmental Protection Agency (EPA) contracted with Macro International, Inc. to conduct a series of focus groups and interviews to assess consumer opinions about their drinking water safety, and to test materials designed to provide the general public with information about their water. The focus groups and interviews asked the following questions of consumers:

- What do people know about their drinking water?
- What do they think they know about their drinking water?
- What would they like to know about their drinking water?
- Where would they go to get information about drinking water?
- How can EPA present data in a meaningful way?
- How can EPA get the public more involved? How is EPA doing?

The focus groups also gauged reactions to various formats for presenting information. Respondents were shown a nitrate violation notice, samples of Envirofacts reports for several U.S. cities, samples of ICR reports (Atlanta respondents only), samples of CCR brochures for two U.S. cities, and excerpts from the information booklet "*Water on Tap.*"

Use of water varied among participants, and sometimes showed a trend among cities. For example, a number of Washington, DC respondents reported either boiling their water or purchasing bottled water. They said that this was due to past problems in their water system, a strong taste and/or smell of chlorine, or appearance of the water. Other respondents reported using filters for their tap water, particularly for drinking purposes. In general, many respondents across all regions observed equated taste, appearance, and smell of their water with safety.

Knowledge of laws about drinking water safety was little to none. Respondents knew that such laws must exist, but they did not know the content of those laws. They also did not have any understanding of who creates the laws, or who enforces them.

Most participants said they know that there are contaminants in their water, however very few individuals were able to specify particular contaminant(s). There was also general awareness that water undergoes a treatment process, that chemicals are added, and that their water comes from some kind of source. However, very few respondents knew specific treatment processes, what chemicals are added to water and why, or the exact source of their drinking water. There was an expressed interest in having this kind of information, particularly among mothers of young children; however a few individuals said they did not feel a need to know about their drinking water treatment unless there is an immediate health concern.

Many participants said they had not thought about how to get information regarding their water quality, and did not know where to begin the process. Some said they would contact their water company for information. Others cited various health departments, looking up numbers in the telephone book under "water," or calling county extension offices. In general, there seemed to be confusion about who to call and what questions to ask. Apartment dwellers were especially

impacted; many do not receive a water bill and may not even know the name of their water company.

Participants expressed some distrust of water companies in reporting the data. They felt that a more believable authority would be a group or agency with no vested interest in the outcomes (e.g., negative public reaction) to reporting water problems. Some felt that as long as the quality of the scientific analysis of contaminants is preserved and of high standard, it will be credible to the general public.

Response to the nitrate violation was almost universal, sparking a great deal of concern. Participants said that they would not give the water to their families, nor would they drink it personally; they would instead opt to buy bottled water. Participants also felt the need for further explanation about the nature of the violation (e.g., what is nitrate and why did this happen), steps being taken to correct the problem, and what would be done to prevent any future problems.

Participants showed a strong preference to materials with clear definitions, charts, and explanations. They also valued brevity and conciseness. When viewing the two versions of the CCR, participants sometimes favored the shorter WSSC report to the full-color Denver report. Other preferred the Denver report because of its use of pictures to illustrate its points, and its eye-catching appeal. Participants liked the definitions of terms provided in the CCR, as well as the explanation of the purification process, but found many scientific abbreviations or measurements confusing. While some appreciated a longer chart, as shown in the WSSC report, many were intimidated by the extensive list of contaminants.

The Atlanta participants reacted to the ICR report with some criticism. Most individuals found the introduction easy to read and understand, however the remainder of the report was confusing, or "geared towards scientists." They recommended creating clear, color coded bar graphs and simplifying the language and terms used in the report.

The Envirofacts report also met with some criticism. Common complaints were that terms or abbreviations were not defined, violation numbers were not explained or put into context, and contaminant levels were not given. Respondents said they would want to be able to obtain this information, but it needs to be put into a more consumer-friendly format. The Internet was used by many people, and some said they would seek out information similar to the Envirofacts data, but a number of people said it would not have occurred to them to use the Internet to research information about their drinking water safety. Many respondents felt that the Internet should be used to provide information to consumers, but it should be only one method among many to deliver information.

Participants in the focus groups and interviews said they would want to receive information through the media, as well as by mail. Recommendations for media coverage included providing updates on television news of drinking water quality, along with pollen counts or flu reports. Other ideas included raising consumer awareness through special reports on television news shows such as "20/20", "Dateline" or "Primetime."

While the EPA met with some criticism because of participants' feelings that the EPA has historically been slow to react to environmental issues, many people expressed interest in finding out what the agency is doing to promote a clean environment on a local and national level. They felt that the EPA's role is to provide information to the people, to promote general awareness, and to ensure that their drinking water is truly safe.

For the most part, the information provided to participants either changed or reinforced pre-existing concepts about the safety of their drinking water. While some said they were reassured knowing that standards are being set and enforced, others were disturbed by information about violations or potential contaminants in their water.

Many participants did not exhibit any desire to become involved in any activities related to protecting their drinking water; they simply want to know that their water is clean and safe to drink. Others said they might become involved if there was a problem with their drinking water. Although participants were recruited as "involved" and "uninvolved," referring to the level of activity they had in community organizations in general, there was no discernible difference among participants based upon these recruiting criteria. Several individuals, however, said they would conduct personal research on the subject upon leaving the focus group, and might even volunteer. These individuals were usually parents of young children, who said they felt a need to improve the environment for their children.

Statement of Purpose/Objectives

II. Statement of Purpose/Objectives

In 1974, the Safe Drinking Water Act (SWDA) was passed by Congress to ensure public safety of tap water. The Environmental Protection Agency (EPA) was deemed responsible for the administration of this act. Under this act, EPA is responsible for setting standards for drinking water. Standards are set for all contaminants that can be found in drinking water. Drinking water standards allow for a margin of safety at which no known health effects will occur. These standards must be met all Public Water Systems (PWS) that provide tap water.

The new requirements in the SWDA require the EPA to provide more information to the public about drinking water, and provide opportunities for public involvement. The new SWDA amendments emphasize public participation and consumer right-to-know initiatives.

In order to prepare for increased information about drinking water and to enhance the EPA's ability to provide the public with information about drinking water, the EPA contracted with Macro International Inc to conduct a series of 8 focus groups and 32 one-on-one interviews. The goal of this research was to help the EPA understand how the public thinks about drinking water, specifically their perceptions and concerns about drinking water. The qualitative research addressed the following questions:

- What do people think about their drinking water?
- What do they know about their drinking water?
- What would they like to know about drinking water?
- How can EPA present information in a meaningful way?
- How can EPA get the public more involved?
- How is EPA doing?

III. Strengths and Limitations of Qualitative Research

For this study, focus groups and one-on-one interviews were used to help EPA understand public perceptions and concerns about drinking water. Focus groups and interviews are a qualitative research method. This type of research is helpful in gaining feedback and individual perceptions and ideas that cannot be obtained through quantitative research. Focus groups generate discussion that can lead to the expression of ideas and opinions useful to clients. Data from focus groups cannot be projected to the general population. The selection of focus group participants is not based upon randomization or other population representative methods. Therefore, focus groups are not intended to provide measurable data that can be applied to an entire population. The findings reflect on the generated ideas and beliefs of the participants.

IV. Methodology

Macro International Inc. conducted 8 focus groups and 32 one-on-one interviews to address the needs of this project. Two focus groups and eight one-on-one interviews were conducted in each of the following locations: Alpharetta, Georgia on April 6-7, 1998; Tacoma, Washington on April 29-30, 1998; and Sioux Falls, South Dakota on May 13-14, 1998. For each location, one focus group was with participants who are involved in community volunteer work ("involved") and one focus group was with participants who do not take part in volunteer work ("uninvolved"). Also in each location, four of the interviews were with "involved" participants and the remainder were with "uninvolved" participants. On May 11, 1998, one focus group was conducted in Washington, DC with "involved" respondents, and four interviews were conducted with "uninvolved" respondents. On May 12, 1998, one focus group was conducted in Calverton, MD with "uninvolved" respondents, and four interviews were conducted with "involved" respondents.

Participant screeners developed by Macro International Inc. were used by independent recruiting firms in each location to screen prospective participants. Eligibility requirements for the focus groups were met by all participants. For all groups, a representative sample of the general population was sought: a mix of race/ethnicities reflective of the general area population, equal proportions of women and men, and no more than two years of college. Half of the respondents were involved in some sort of community activity or organization (e.g., PTA), with the exclusion of safe water or other environmental action activities, and the remainder of respondents were not involved in community activities. Respondents were excluded if they indicated they were employed with water or sewage treatment facilities, the EPA, or other environmental action organizations. For more information, please refer to the participant screeners in the Appendices.

A moderator's guide was also developed at Macro International to answer the questions listed in the background section of this report. All focus groups were led by Ms. Lynn Halverson, a trained moderator from Macro International Inc.

Each focus group and interview was audio and video taped. Transcripts were prepared from the audiotapes by Shirley Jones and Associates, Inc., a professional transcription firm. Transcripts from all focus groups and interviews were used in the preparation of this report, and video tapes were used to compile a video highlights tape which accompanies this report.

V. General Findings

A. Participant Knowledge of Drinking Water Issues

Do you drink tap water or bottled water?

A number of participants said they drink water straight from the tap without any concern or thought to its safety.

"I drink tap water. It's good." (Tacoma respondent)

"We just drink it the way it comes out." (Tacoma respondent)

However, a number of Washington, DC residents indicated they boil their tap water and keep a supply in the refrigerator.

Other respondents said they only drink bottled water, and others say they use a filter for their drinking water.

"I filter water from the sink, plus I have it filtered in the refrigerator." (Tacoma respondent)

"I filter water just because I know what you hear about it. It's not as bad as Mexico, but it's close." (Sioux Falls respondent)

"I agree. I don't think tap water tastes good. I drink the bottled water. [...] And then at night, I won't drink the tap water. We don't have a system built into the apartment." (Sioux Falls respondent)

Still other respondents said they use a combination of drinking bottled water, filtered tap water, and unfiltered tap water depending on the situation they are in.

"We buy bottled water a lot and we drink out of the tap a lot too, because I refill the bottles with tap water and then we drink them." (Tacoma respondent)

What do you prefer about drinking tap water? Bottled water?

People who drink bottled water said that they feel the water "tastes better" than their tap water. They also think it is "cleaner" than tap water, because of regional water safety warnings which has caused them to doubt the safety of public water. They perceive bottled water to be "healthier" than tap water.

"I think, supposedly, the bottled water is supposed to be more purified, whatever, through different systems. I guess that's what I think. That's why people drink it. Otherwise, what would be the purpose of it?" (Sioux Falls respondent)

"People wouldn't pay money for it if they didn't believe it was filtered more, or better for you. When my young children were on formula, I always bought bottled water just because, well, in that area we had a well system, and the water smelled bad. And just smelling it, you knew you couldn't -- I didn't want to give that to my babies." (Sioux Falls respondent)

Respondents who drink tap water said they continue to drink it because they have never gotten sick from it, and it looks and tastes fine.

"Well I've never gotten sick, neither does my husband. We're in good health. I would think, if we weren't safe, we would have some kind of sickness that would show up, sooner or later." (Tacoma respondent)

"I have been drinking it for so many years, maybe I don't know the difference." (Tacoma respondent)

"When you turn on a faucet, fill up a glass of water and drink it, and it doesn't leave a funny aftertaste in your mouth and it doesn't smell funny, to me that's usually a good sign that it must be safe. And the fact that I've never gotten sick from it." (Tacoma respondent)

Other respondents considered visible sediment or cloudiness in the water to be an indication of safety, and were not concerned about drinking their tap water as long as it looks and smells agreeable.

"I haven't had any problems with it. I haven't had the discolorations in it. I'm pretty thorough with checking. I have those little spigot screens on the faucets -- not on the faucets but on the stem and I haven't had any problems with them clogging. And even when I check for resurfacing the units there's very little sediment in them." (Calverton respondent)

Some people who drink tap water said they also prefer it because of the lesser cost, and in fact may avoid getting bottled water or filters because of the additional economic burden associated with it.

"Bottled water is too expensive." (Sioux Falls respondent)

A number of respondents indicated that they drink tap water only after having further processed it in some way. Methods used for further purification were charcoal filter (Brita (tm)) systems, tap filters, distillation stills, or boiling the water. One respondent indicated he did not trust what is added to water, such as fluoride, and in general distrusted the government's motivations and truthfulness -- he preferred to use a home distillation method. Reasons given by other respondents for filtering tap water using faucet attachments or filter pitcher systems were usually that it improves the taste or perceived safety of the water.

"People are uneducated, that's why they drink it. If they knew what was in the water, how many times on average... (...) Say you take a glass of water, or take a shower; it's been recycled seven times, which means it's been used an average of seven times by other people." (Sioux Falls respondent)

"I drink water filtered all the time. My water stinks." (Tacoma respondent)

Do you drink bottled water only? If so, why? If not, why not?

Respondents' reasons for drinking only bottled water usually were due to perceptions of better taste and purity of the water, or even convenience.

"It comes down to we have an old house and our water pressure is always low. The water would be dirty, and so for convenience sake we'd buy bottled water and we just kept doing it." (Tacoma respondent)

How do you use drinking water?

Respondents described their uses of drinking water for drinking, bathing, cooking, laundry, dishwashing, and watering plants. Tap water is generally used for everything with the exception of drinking, when respondents may use different sources as described above. However, one Tacoma respondent said she uses filtered tap water for cooking in addition to drinking because *"it's made some bad tastes with some of the food."* Another Tacoma respondent who solely drinks bottled water will also use the bottled water for ice cubes, but will use filtered water for cooking (tap water is only used for laundry or bathing; this respondent changes her water filter on average of once a week). However, some respondents say they use regular, unfiltered tap water for all their needs. One woman in Sioux Falls, with four children ranging in age from 6 years to 3 weeks old, says she uses tap water for her children on a regular basis.

"I use the tap water for her (the baby's formula). It's safe. I haven't noticed the awkward taste and stuff. I mean, I've drank a lot of water at different places, and this water seems OK -- I've been told it's safe, too."

When do you think about it? Why would you think about it then?

A number of people interviewed did not think about their water often or at all, and said they expect to get a safe water supply when they turn on the tap automatically; they trust that someone is monitoring the safety of their water, but it shouldn't be something they need to be concerned with.

However, a large number of respondents did say that they think about their drinking water source sometimes or often, particularly when using it for drinking. Cooking, another source of direct water consumption, is perceived as a "safer" activity because the water is usually boiled. One Tacoma respondent noted he thinks about water when bathing, because of the amount of water that he said is "absorbed" by the body through the skin.

A woman in Atlanta reported that she had thought about the safety of her drinking water after moving to the area. After her test came back within safe limits, she had greater confidence in her water safety level. Only on an occasional basis did individuals report that they had tested their drinking water for contamination levels.

"We did [think about our water quality] when we first moved here. We had it tested. We sent it to a lab, and I don't remember where. You called, and they sent you a little tube thing and you let your water run for so many minutes. I think it was a little lead scare that was going on, because we've lived here seven, almost eight years. And you just let your water run for so long, and you put so much in the tube, send it to the lab, and they tested it and you get the written results. Our water was fine." (Atlanta respondent)

Do you think about it more when traveling? What about in other countries? Is it better or worse here?

When traveling domestically, respondents did not usually report thinking about their water source. They reported drinking tap water on a regular basis. Some respondents who usually drink bottled water at home may drink tap water when traveling, because of availability of tap water or unavailability of bottled water (e.g., while staying in a relative's home). There were also some respondents who said they might drink bottled water while traveling domestically for convenience, such as on car trips or on airplanes. Other reasons for avoiding tap water while traveling domestically were given as destination's proximity to Mexico or other areas that are perceived as unsafe.

One woman in Atlanta said she bottles her own tap water and brings it with her when traveling domestically. Her concerns about other water systems stem from her perceptions about bad taste.

"We take our own water when we got out of the state always. I think it's a taste thing. It's more saltier or something, you know." (Atlanta respondent)

However, when traveling abroad, very few said they would drink tap water because of health risks. "Don't drink the water" was a slogan that was heard repeatedly. Even when traveling in Europe, respondents said it is difficult to get a glass of tap water in a restaurant, for example; the accepted standard is to purchase bottled water for drinking. Europe, however, was generally perceived as safer than other destinations such as Mexico, South America, or Africa. The exception was for respondents who were actually born or who have lived in another country; they expressed caution but generally felt safer because of their perceived "lower susceptibility" to illness.

Has your attitude about drinking water changed at all? What caused it to change?

Several participants, particularly those in an older age group, expressed that they had changed their behavior and actions about drinking water and water sources in general. They reported previous behavior that included dumping dangerous substances (e.g., turpentine, used motor oil) into sewers, drains, or waterways. Subsequently they reported that a combination of education

and/or fines by the government has changed their behavior and attitudes about drinking water safety.

Other respondents who may not have been concerned with drinking water safety a few years ago reported that they now are very conscious of it, due to problems in their area with their water supply. They are now more conscious about the fact that drinking water can potentially be unsafe, and have taken action to ensure their personal or family drinking water sources are safer.

"One of my children had a high lead level, and that's another reason why I give them bottled water." (Maryland respondent)

Some participants, however, particularly individuals who do not worry about or take precautions with their water safety, said that their opinions about their drinking water has not changed over time. One woman in Tacoma said that while she has never thought about her tap water at all, she is more aware that water in streams can be contaminated and will no longer drink directly from them while camping.

In general, how concerned would you say that you usually are about the safety of the water that you drink?

Respondents' reactions to this question varied, depending on the region of the country where they lived, their personal views and experience, and whether the area has had any problems with levels of impurities. Washington, D.C. residents often reported boiling their drinking water; their actions have changed because of media warnings about drinking water contamination that occurred several years ago. They often indicated trusting suburban Maryland water more than Washington, D.C. water in terms of water safety. However, respondents perceptions about water safety were not always directly attributable to regional problems; some expressed general distrust for treated water.

Do you think that your drinking water is safe? Why or why not? What makes you believe that it is safe/unsafe?

Response to this question varied. Some people had not even thought about the safety of their water, and assume that it is safe if it comes out of their tap; the assumption is that someone, somewhere must be regulating it. Others said they do not believe their water is safe, because of turbidity or past problems with their water system. Other reasons for distrusting water safety are the smell, taste, or appearance of the water.

"If it looks pretty clear and it's not cloudy, that usually gives me a good sign that it's ok." (Tacoma respondent)

Are there any laws or regulations that require your water to be safe? (probe for knowledge of EPA)

Most respondents did not have any knowledge about specific laws or regulations that require water to be safe, but they said such rules must exist. There was an understanding that water is

treated and tested before it reaches a home, for water coming through city water lines for example. There was also often a vague or non-existent understanding about who actually makes and/or enforces the laws.

"I would imagine it has to be probably a combination between the State and the Federal level. I'm not really sure which. I would imagine it's like anything else." (Tacoma respondent)

If you think about safety, where do you find out how safe your water is to drink? Would you ever use the Internet to find out?

Most respondents were unsure about how to find out about drinking water safety from a proactive sense, specifically who to contact and when to do this. They often indicated that they would expect to hear about a problem through the media (television, newspaper, or radio). If they wanted to find out more, some respondents said they would contact their water company. However, some people do not even know who their water company is (e.g., apartment dwellers who do not receive the water bill). Also heard was that respondents might look in the Blue Pages of their phone book under the heading "water," or would simply contact the Health Board. Much of their confusion often stemmed from lack of understanding about what agency actually oversees their water supply, and whether they should look to a local, state, or Federal source for information or assistance.

A large number of people said that they have access to the Internet, and even though it is not the first place that comes to mind to locate information, they would not hesitate to use it. However, some people who did not have Internet access said that information should be made available to people in a number of formats, not just on the Internet.

Have you ever heard of drinking water posing a health risk? Are there certain people for whom drinking water may be more of a concern?

Most respondents had a general understanding of the fact that drinking water can pose a health risk. A number of people also indicated children and the elderly as being more susceptible to health risks, and to a lesser extent cancer patients or other people with lowered immune systems.

Some respondents had heard through the media of incidents with drinking water that caused illness or even death. Those who were familiar with these incidents attributed it to reasons such as floods or natural disasters, or pollution or other contaminants from humans.

"I think there was a terrible article on TV a couple nights ago. I can't remember the name of the disease, but in Lake Michigan, the water purification plant was two miles downstream from where they were dumping toxic stuff from a sewage treatment plant. It was going in two miles upstream from that plant, and it has pulled in some virus that killed in excess of a hundred people rather rapidly. Something that starts with a "C" but it wasn't good. It came from the drinking water supply, and this was just in the last week." (Sioux Falls respondent)

What kind of substances can get into drinking water to make it unsafe? How do they get there?

Response to this question varied from an ability to list specific parasites (e.g., giardia) or other agents, to one of general understanding that biological material or minerals can enter the water and affect the body. A number of respondents cited various environmental occurrences as being responsible for changes in the water quality, such as water table increase, seepage or septic waste, or dumping of hazardous substances.

"I would think some kind of bacteria was -- you know, that was not processed completely or somebody had dumped something in it accidentally or something. Some kind of contamination." (Atlanta respondent)

Comments from participants also reflected regional industry awareness; for example, Sioux Falls respondents had awareness about effects of farming and pesticide impact, whereas Tacoma respondents were aware of water quality issues from an outdoor activities perspective (e.g., impact of dumping waste into streams while camping).

"I think it's safer in this area, pretty much, but you worry with all the farming and insecticides and the run-off and the cows in the water, everything from urine and feces to pesticides and farming chemicals being dumped in the water. What are you drinking, you know, sometimes?" (Sioux Falls respondent)

Maryland respondents were also more aware of potential sources of water contamination because of recent problems with fish kills.

"Well from what I hear, Maryland water's not too safe either with the runoff from the chicken factories and everything." (Maryland respondent)

Do you think of drinking water as an environmental issue or a health issue?

Most people responded that the issue of drinking water safety is both an environmental and health concern. It was often cited as being interconnected; what enters our environment will eventually be passed on to humans in one form or another.

"Well, first you have to control environmental things in order to control the health issues with the water. If we can keep tabs with what's going into the water systems and how it is being purified in the water purification plants, and making sure those processes are up to standards, then hopefully the drinking water will be safe." (Sioux Falls respondent)

"Sounds like 'which came first, the chicken or the egg?' If you're not having good hygiene, you're going to pollute the environment, which in turn pollutes yourself." (Sioux Falls respondent)

Are you aware that most drinking water contains low levels of many impurities? Does this concern you?

Most respondents were not surprised to learn or already understood that drinking water contains low levels of impurities.

"There's always going to be contaminants in it. There's never going to be 100 percent clean water. It goes by percentages." (Sioux Falls respondent)

However, some did not know that water contains impurities, and assumed that the water coming from their faucet is pure, uncontaminated water.

B. Demand for Information About Drinking Water

What kinds of questions do you have about the safety of drinking water?

A number of respondents said they want to know what is actually in their water, what the allowable levels are, and risks associated with exceeding these levels. They also want to know how the water is actually processed.

"Who works at the plant, and how often is the plant inspected?" (Maryland respondent)

"I know I would like a way to test my water at home." (Maryland respondent)

What is the single most important piece of information you would like to know (or could use) about the safety of your drinking water?

Some respondents said they wanted to know the history of problems with the water in the area, including recent problems and what steps are being to correct violations.

"If they're either exceeding it or below, that's what I'd want to know. I'd want to know what they're exceeding on and say, okay, this is what they're doing good on, and this is what they're falling short on. If they're meeting all the requirements, then that's not really necessary for me to know."

Others simply said they wanted to know a cut-and-dry answer about their general water safety; one Tacoma woman said, *"I just want to know, is it safe to drink?"*

What types of information about drinking water do you think you should be provided with?

Opinion on this varied: some respondents wanted to have a report every month of levels of impurities in their water along with maximum contaminant levels and ideal contaminant levels. Others wanted to know only if a violation had occurred, or a significant increase in a contaminant. They felt that letting them know about increases would serve as a "flag" that a problem could occur, and would establish trust that someone is monitoring the condition and trying to remedy a situation before it becomes a problem.

Would you assume your water was safe until it violated a standard?

Most respondents said they expect drinking water to be safe (i.e., within allowable limits) at all times. If a violation occurred, they would expect to be informed about it immediately via news or notice, with an explanation of what that violation means to them. Several people said they would also want to be provided with the means to obtain further, more technical information beyond the preliminary notice.

Does it matter who sets the standards about water safety?

A number of respondents said that they expect water safety standards to be the same throughout the United States, and those standards should be set by individuals who have no vested interest in a particular water system. As such, several people said that local authorities should not set standards; it should be overseen by a national entity, with power to enforce or penalize, such as the EPA.

If there was a violation of drinking water safety standards by your local water system, how and when would you expect to receive this information?

How much information would you want?

The majority of respondents said they would want to know about violations immediately -- *"The minute the plant finds out."* Most said they would expect to hear about violations through the media, such as television or radio. However, a few said they would want to hear about it some other way, such as by telephone or posted notice.

In terms of amount of information they would like to find out initially after a violation, most people's concerns were connected to what action they need to take or restrictions they need to place on their water usage.

"[I'd want to know] if it's safe to drink. That's the main thing; safe to cook with." (Maryland respondent)

Would it matter what this violation was for?

Some respondents said the type of violation is a factor for them in terms of urgency for "need to know." For example, when asked whether she would want to know about a lead violation versus a parasite violation, a Maryland woman responded *"I'd rather know about the parasite. That'd be a little more scary."* When asked about one causing immediate intestinal problems versus long-term effects such as cancer, she responded that both possibilities are equally threatening and she would want to know about both of those problems.

Other respondents said the type of violation is not a factor for them; they would expect to know about any violation immediately. If the danger is not immediate (e.g., intestinal illness), long-term effects would be an issue of major concern. Respondents said they would not want to drink any water as long as there are any potential risks associated with it.

What if your water system wasn't monitoring for (i.e., testing for) something that it was supposed to?

Many participants felt that if water is contaminated, or if something was discovered that water systems had not been testing for, then *"someone is not doing their jobs."* Respondents generally felt that there is an issue of trust between provider and consumer; even those individuals who do not drink plain tap water still use it in some form, and rely on the safety of their water.

Example of nitrate violation. What message would you think this is trying to get across? Would you be alarmed? Would reading this cause you to do anything differently?

Most respondents who read the sample nitrate violation said they would be alarmed, to the extent that they would not drink the water themselves even though they were excluded as a risk category. A number of people said that they would buy bottled water. People said they would ask for more information about how and why the violation occurred, as well as the actual levels of nitrate and how much they exceeded safety standards. Participants were particularly uncertain about the wording "not a concern for most people" and where they fit in. Suggestions included being more specific about possible effects and at-risk populations and specific conditions. However, they were often unsure if clearer language would reassure them about possible risks.

*"I think I'd just go get bottled water. I wouldn't take the chance. You've only got one life."
(Tacoma respondent)*

"I would buy my water." (Maryland respondent)

"I think the thing that stands out to me on this is, if water isn't suitable for infants or pregnant women, shouldn't it be unsuitable for everyone? Why should we say we can drink this water that has nitrate in it? I wouldn't drink it." (Sioux Falls respondent)

"What is nitrate and where does it come from and how did it get in there?" (Tacoma respondent)

However, some respondents said that they would believe the notice; they would not give it to children or elderly persons, but would continue to drink it themselves. They trusted the wording and the message being delivered.

"If they sent out this notice, saying that it's suitable for those who are older than six months, they probably know what they're doing." (Tacoma respondent)

What issues might you be concerned with regarding your children and other sensitive people (e.g., the elderly or cancer patients)?

Respondents often had the knowledge that children or the elderly are more susceptible to illness than other individuals. *"Anyone with a worse immune system"* was something that was listed as an area of concern. People who had young children in particular were concerned about the potential risks their children may be exposed to, and said this would make them more likely to pay attention to warnings or information distributed to them.

However, another opinion often heard was that what may be a risk to children or the elderly may also pose an undiscovered risk for people with average immune systems, as was touched on above when participants viewed the sample nitrate warning. A number of people said they would take the same precautions for themselves as for their children, for example, if there was a warning about water quality. Please refer to the section in this report regarding nitrate warnings for illustrations.

Utilities and banks, among others, often send us extra materials with our bills to communicate information that they think is important for us to read. Have you seen these kinds of things? Under what circumstances would you be likely to read something like that? Not likely?

Whereas some participants said they read everything they receive with their bills, others said they do not read information unless it is eye-catching or relevant to them in some meaningful way; the bulk of it they consider to be "junk mail" and an annoyance. They will read materials sent through the mail if they contain wording such as "important document" or have some official identification to make it distinct from other pieces of mail and/or directly relevant or important to them.

C. How can EPA present data in a more meaningful way?

What kind of information would you like to have in an information piece (e.g., a brochure or report) to help educate people on the quality of your drinking water? What would make it likely you would pick it up and read it?

A number of people said they wanted to be provided with as much information as possible about the current status of their drinking water (e.g., contaminant levels and how to interpret them), how water is treated and what is "added" or removed, where it comes from, and what is being done to improve the overall quality of their water.

"I would want to know the mercury content, lead content, and probably the biological content; what kind of condition the water's in. And how those [levels] stand up to whatever the standards are." (Sioux Falls respondent)

"I've heard somewhere that -- well, we all know there's fluoride in the water. But isn't there a certain level where it becomes harmful?" (Tacoma respondent)

"Once they get it from the source, how do they treat it so we can drink it. I mean, if we're getting our water out of the Sioux River, what are they doing to it to make it safe because I certainly wouldn't drink it right out." (Sioux Falls respondent)

There was also a segment of respondents who indicated they would not be interested in hearing any information unless it has direct, immediate relevance to their personal situation. They also said they would be more inclined to get information from the media (e.g., television or radio reports) than to look at brochures enclosed with their water bills, for example.

Participants in a focus group in Sioux Falls complained about the quantity of "junk mail" they receive with their mail, including pamphlets enclosed with utility bills that are not particularly interesting to them. A number of participants said they would definitely be interested in reading an informational brochure on water quality, however they would need to have a "flag" to let them know such a brochure was in their mail. For example, one participant suggested adding a line, "See important health information enclosed" next to the "total due" box on the water bill, where everyone will look. Others suggested putting a notice on the front of the envelope.

"Junk mail, there's too much junk mail every day. It would have to be something that said 'Please Read,' or 'Some Important Information About Your Water'." (Sioux Falls respondent)

Reactions to ICR drinking water data:

Participants in Atlanta, who viewed the ICR data, generally had difficulty reading and understanding much of the ICR report.

"This is technical. To an extent that nobody is going to understand what the heck is going on. If I was some type of scientist, if I was some type of biologist..."

Participants said they would not understand why they were receiving the report.

"I'd want to know, why are we getting all this?"

Participants also said they were not motivated to read the chart in depth to interpret the data, due to its complexity.

"I'd have no interest [in the chart]. It just looks like it's high. You know what, it just doesn't make a lot of sense."

Instead, participants recommended putting the ICR data into a format that would more directly relate to the individual, average consumer.

"What I want to know is does it directly affect me, so I'm in Fulton County and my water comes from Fulton County Water Plant. I want to know what's going on in there, if there is a problem, how is it being treated, and what we can do to make it better."

"I guess I'd want to know when it got to a dangerous level. I don't know if they need to tell us how they do it."

In particular, they found the scientific terminology and lack of an explanation in "layman's terms" made the information extremely challenging. One focus group suggested creating a color bar graph to indicate contaminant levels for key contaminants. They said this method would allow them to visualize existing contaminant levels versus allowed standards.

"They need to put it in layman's terms, saying your water plant has exceeded the level recommended by whoever."

"Like maybe red, green -- maybe like green is a good zone, yellow is a caution zone, red is danger, and then where the water is."

Reactions to Envirofacts safe drinking water report(s):

What message do you get from the Envirofacts report? Does one city look different to you? Do any violation types stand out? If all violations are in the past, how confident are you that your drinking water is safe today and will be in the future?

The Envirofacts safe drinking water reports met with varied reactions by respondents. Some said they liked the level of detail, specifically the listing of violations in their area and corrective action. However, many found the report confusing because of the use of undefined acronyms, unspecified maximum contaminant levels, and unspecified level of contaminant actually measured. Terms such as "turbidity" were also not defined and confusing to readers. The presence of violation numbers, and lack of explanation about specific violations and actions of contaminants, was also a source of frustration.

"I don't care about what violation number it is. I mean, I'd like to know when it was, what's the contaminant, what does it do, why is it bad for you." (Atlanta respondent)

Several participants thought the Envirofacts information was confusing, geared toward people with a scientific or environmental background, and needed interpretation. Some people suggested that the Envirofacts information be provided as a supplement to text-based information, instead of as a stand-alone document.

A number of individuals, when confronted with a long list of violations, particularly in their area, grew alarmed or upset by the information and indicated the violations caused them to think their water is unsafe or "dirty." Other respondents said that, even if the contaminants were harmless, simply knowing that contaminants had been found in the water would dissuade them from drinking it.

"If I knew they found -- if I knew they found different [contaminants] in there, I don't think I'd want to drink it. Now I'm not saying that these will hurt me or anything. But just knowing it...." (Washington, DC respondent)

The Envirofacts report is available over the Internet for drinking water systems throughout the U.S. Do you think that the Internet is an appropriate place to disseminate information on drinking water? Why?

A number of respondents said they use the Internet and might look at the site if they knew how to find it, but it would take more effort than the average person would want to expend. An equal

or greater number said they do not have access to the Internet. Almost all participants felt that, while the site is a good idea and a more in-depth source of information that should be provided for people, the Internet is only one of many mediums that should be used to communicate important information.

"I don't think it should be just the Internet. There are too many people who don't have computers." (Atlanta respondent)

Reactions to the Consumer Confidence Report:

Respondents were shown two different versions of the Consumer Confidence Report (CCR): one from Denver, Colorado, and one from the Washington Suburban Sanitary Commission (WSSC) in suburban Prince George's and Montgomery Counties in Maryland.

Reactions to the formats of the brochures was divided along two lines. One segment of the respondents strongly preferred the glossy, full color layout of the Denver CCR. The other segment preferred the WSSC brochure, mainly because it was "more straightforward." Some of the respondents who favored the WSSC report felt that the Denver report looked too slick.

What in particular do you like about the CCR? Dislike?

When asked about preferences for chart style, most respondents said they liked the Denver layout because it is "easier to read" -- even respondents who had favored the WSSC report overall. However, because the WSSC list of contaminants tested for was more extensive, some participants felt that WSSC is testing for more contaminants than Denver. In general, some participants were confused by the units of measurement used in the chart (e.g., "parts per billion").

"That wouldn't really tell me much. I guess that's some kind of measurements they'll measure it by. But it wouldn't really tell me much.[...] Just put some little footnotes or something on here." (Washington, DC respondent)

Participants in a focus group in Sioux Falls also expressed confusion about the notice informing them about filters and bottled water:

"The note at the bottom is making me wonder, even more, if this level of contaminants is okay and its okay to drink tap water, then why is it necessary that we have filters and stuff on the market? Is this a bunch of hype or is the water safe?" (Sioux Falls respondent)

Many respondents said they particularly liked the definitions given in the CCR. Other said they appreciated the explanation of the process used to treat water.

"I like how they tell you how the water's treated." (Sioux Falls respondent)

"Explanations of what some of the things are. For instance, the definitions down in the right hand corner. Those let me know what they're trying to say as far as parts per million, parts per billion, and all of that." (Maryland respondent)

If a report like the CCR was included in your water bill, would you read it?

Most respondents said they would at least look at a CCR if it was included in their water bill, while a large number said they would pay close attention to the information provided in it, even if they didn't understand everything.

"I would read the whole paper. I might not understand it. But I would read it." (Washington, DC respondent)

However, some individuals said they might lose interest in the CCR if it was included in every statement -- they recommended alternating months between issuing the report, or providing an annual report, unless a problem had been discovered with the water.

Other respondents who do not actually receive their water bill (e.g., apartment dwellers) expressed great interest in receiving the report by some other means. Some respondents who live in the suburban area covered by the WSSC said they had never seen the report specifically for this reason.

Let's say we wanted to make sure you would get this information, but we wanted to put it in a format that was more friendly to consumers. How else can you imagine this type of information being presented? What format would make it most likely that you would actually read it, if any?

Repeatedly, participants said the best way for getting information about water contaminant levels is through the mass media, either in the form of bulletins or regular updates.

"If there's something serious, they'll tell us on the news that our weather system is bad."

A group in Atlanta voiced an idea which was heard from many other individuals across the country.

"Like on cable, where you have the news station and they talk about the weather forecast, why couldn't the talk about the water on those kinds of stations? Do you know what I'm talking about? Like the pollen count."

A focus group in Maryland echoed this idea.

"I would suggest -- we have local air quality indexes, we could have water quality indexes as well through the media, which reaches the most people."

Other respondents agreed that information should be provided in the water bill, in order to provide a more detailed report of water quality.

"I think, pretty much, in the water bill would be the perfect place. Put the information in your water bill, and if people are interested in reading that, then they can, and the people who aren't can toss it. But they have to tell the people who are drinking the water, what the reports were last month or if there's any risks or violations in the previous month for people who are interested." (Atlanta respondent)

Who should be responsible for providing this information to you? (local utility company, the government, environmental organization, your doctor) Why? (probe for perceived trust levels)

While most participants said they might expect to get information about water quality from their water company, the issue of reliability and credibility was also discussed. Some participants felt that if violations were found, that could be interpreted as error on the part of the water company. This in turn might lead the water company to misinform or "pad" the truth from the public.

"You've always got that group in government who's trying to protect themselves. They've made a mistake and now they're trying to protect themselves, and they don't always tell the truth. You see that all the time in different phases of government. So, with the WSSC it would be the same sort of thing. I'm afraid they would be lying to you, just like any corporation would be. They don't always tell the truth because they're protecting themselves." (Washington, DC respondent)

In general, most participants felt that these concerns would be alleviated if they were provided assurance that accurate, reliable testing is being conducted on a regular basis by scientists. Providing neutral third parties, such as an independent lab, to conduct the tests was one suggestion for resolving consumers' fears. The concept of an overseeing agency, such as the EPA, also provided reassurance.

"I would rather go to the EPA, hoping that the government would expose any problems that the WSSC might have because they have no interest in WSSC, I hope."

Would you be interested in information on a national level about drinking water? On a state level? On a local level (i.e., your water utility)? On the source level (i.e., lake, river, well)? Is there one you are especially interested in?

Most respondents who answered this question indicated they might be vaguely interested in information on a national level, but would be most likely to read information pertaining to their own drinking water. Some respondents expressed interest in hearing information on a regional

basis, while others said they would be interested in hearing about activities or areas of concern that might be going on in their community that might directly impact them.

Response to "Water on Tap" booklet -- information on why EPA allows contaminants, and how does EPA set drinking water standards. Do these sections make sense? What are they telling you? Does reading this information change the way you understand the data we just looked at?

The specific sections about contaminants and standards for these contaminants were generally understood and well received. Some participants said they were reassured by the information that most contaminants are harmless or even help improve the taste of drinking water.

"Like they said, it would wash throughout, it goes throughout the system and it probably won't have any effect on our body, which is interesting. I'm glad to hear that." (Washington, DC respondent)

However, some of the statements caused disagreement or confusion. One individual in Tacoma expressed confusion over the concept that some contaminants may improve the taste of drinking water. A woman in Maryland disagreed with the statement about cost implications and lack of a harmful effect by contaminants; she wanted everything removed from her water.

"Who cares, you know? I mean cost, the thing about cost. Who's to say what hurts you won't hurt me. Get them all out."

Some participants said that, while they understood what the segments of text were saying, the information did not affect their concerns sparked by the nitrate warning and the CCR. One Atlanta respondent did not feel comfortable with figures based on lifetime exposure.

"No, I don't think it changes what I thought of the graph and the other information. [...] Sometimes when I read a little, I worry more. I begin to wonder, you know, why am I putting my life in the hands of somebody who is a bean counter? [...] I don't think I like the fact that a lot of these figures are based on lifetime exposure. I think they should be considerably narrowed, in my opinion." (Atlanta respondent)

It should be noted that some participants, upon receiving the full booklet at the end of the session, were very enthusiastic about the level of information provided and the credibility of the source.

"I love this book. I mean it will help me out with anything I'm looking for. It answered my own question. 'What is that?' And there it is sitting right in front of me. I like this type of book, this is more detailed, it explains a lot more and this is from the National Drinking Water Advisory." (Tacoma respondent)

D. How can EPA get customers more involved? How is EPA doing?

Having talked about drinking water safety, are you interested in helping to protect your drinking water? If yes, can you think of anything you could do?

While a number of participants said they did not want to become involved in any activities to protect drinking water, several individuals said they had or could develop interest in this sort of activity. For example, one woman in Washington, DC wanted to know how she could be more aware of potential sources of pollution in her community.

"I would like information that would help people spot places that are constantly being bombarded with trash, which could end up in the sewer system, which could cause problems as far as what dirt and things are being pushed down, you know, into the water." (Washington, DC respondent)

Whose responsibility is it to protect drinking water sources -- the water supplier, local community, State government, Federal government? What should any of these do to protect the water supply?

A number of people said it is the government's responsibility to protect water sources, to create and enforce laws that will ensure water pollution is kept to a safe level, particularly when it pertains to the water source.

"Overall, it is the government's responsibility to govern this water because we, as individuals, really cannot do anything to sway one way or the other how the regulations are made out for water. So, we have to depend on somebody, a much larger entity, to do that for us, and that's what we pay tax dollars for."

While most respondents agreed with this opinion, some said it is also industry's responsibility not to pollute the environment. Others said it is each individual's responsibility to ensure his/her actions to not harm the environment, and there is a need to form a working partnership between government, industry, and the public.

"As a community, I think we need to be responsible. Just like we shouldn't throw our garbage in our water systems, either." (Sioux Falls respondent)

If you had not come here today and seen this information, can you think of any other types of events that might increase your interest in the safety of your drinking water? What else might make you interested?

Most respondents said they are impacted by special reports they see on the television or through the newspaper. An overwhelming number of respondents said that the media is the best way to reach a wide number of people, particularly those who might not read newspapers or be motivated to read pamphlets, or those who live in apartments. Respondents across geographical areas repeatedly cited "credible" television shows such as "20/20" or "Dateline" as a good way of sparking public interest, awareness and concern about drinking water safety.

A few other participants said they might be motivated to volunteer if a water crisis affected their community and/or family.

"Not unless there was going to be a health issue, you know, something came out on the news that said start boiling your water. Then maybe I'd take a different action." (Maryland respondent)

What role do you think the U.S. Environmental Protection Agency plays in keeping your drinking water safe? Is there anything EPA is not doing that you think it should do?

When prompted with the EPA's name, many respondents said the role of the EPA should be one of overall national standards setting and/or enforcement. They also said the EPA needs to have an education role with consumers.

"I think it's their responsibility to let consumers know that their water is safe. Maybe it will come from the county water departments, but they should make sure that they are doing that." (Atlanta respondent)

"I think they're trying to give us good water, they're trying to see if we've got some ideas that they haven't got. You know I think they're trying to make sure we decent water to drink, and trying to prevent pesticides and all that stuff going in your water." (Tacoma respondent)

One focus group in Tacoma, Washington said that they felt the EPA needs to be more proactive than it has been in the past. Respondents said they wanted specific information about actions EPA has taken in their area to improve the environment, particularly because of environmental incidents that have occurred on a local and national level. They cited pollution problems such as Love Canal, the Hudson River, the East River, and the pollution levels in their own bay.

"I think it would be nice if, periodically on the news, we could get some information about something that the EPA, specifically, has done. Because, it seems to me that, over the years -- I don't know how long the EPA has been in existence. But they've been very slow to move on industrial pollution. You know, we practically have to have a disaster. [...] Because of the money. I just think the EPA is very slow to act or investigate." (Tacoma respondent)

This viewpoint was echoed by a respondent in Sioux Falls.

"I certainly think that some of the companies and some of the different businesses that are causing more of a hazard to your health as far as the water goes, that they definitely should be doing more to come down on those people and make them take care of part of the cleanup to change the situation." (Sioux Falls respondent)

After having this discussion, how confident are you that the water that comes from your tap is safe to drink? Does your perception change as you have more information?

A number of respondents expressed concern about the quality and safety of their water after seeing the information about violations in their area. Some of those respondents had indicated they already took precautions about the safety of their water, such as filtering, boiling, or drinking bottled water. The information provided factual basis for their concerns; it heightened awareness about contaminants that they cannot see, smell, or taste. The information also prompted them to think about where their water comes from, what can be in it, harmful effects of contaminated water, and where they can go to find out more information.

"We all get very complacent. 'I'm sure the government must be taking care of us. I'm sure they must be doing this right.' Maybe it takes groups like this to wake us a little bit." (Tacoma respondent)

"When I came in here, I thought tap water was about 80 percent safe. Now I think it's probably about 60 percent safe." (Atlanta respondent)

"I drink it because you have to drink something. But I don't think it's completely safe." (Sioux Falls respondent)

"I might be more [involved] because even with the survey today where you're actually calling my attention to it, talking about getting somebody interested in it. To get people to understand more, they say a lot of times through the eyes of a child you can see more than an adult will. If it's presented the right way, you know he's going to go home and talk to his parents about it." (Maryland respondent)

"I'm probably going to start filtering more water than I do now." (Tacoma respondent)

Some individuals left the sessions prepared to do research to find out more, and perhaps get involved in clean water activities.

"I am going to call and ask about it, if they can send me some type of report or graph showing if there's been anything detected in our water in the past 10 years." (Atlanta respondent)

"I think I would [volunteer] just because, again, I have children. Maybe do some volunteer work, awareness to -- give brochures like this to people to make sure they know what's in their water, you know, how clean their water is." (Atlanta respondent)

Others, particularly those who said they did not think or care about their drinking water because they had never experienced a problem, were not as motivated by the information. They would likely take action for their family water supply, but would need to be prompted by warnings through the media.

"I'm really not concerned until I see brown water come out of my tap or something." (Maryland respondent)

"If it's going to make me sick, if there's a hazard to my health or my child or whatever, I want to know. Something major. But if it's not, I really don't want to know."

VI. Conclusion

Participants in the focus groups and interviews were, for the most part, divided across two groups: people who are concerned about their drinking water, and want to learn more about it, and those who are not concerned and only want to be notified about a serious problem.

Many participants, particularly those who expressed interest in their water quality, already take "precautions" with their water in some form. For example, they filter their tap water or buy bottled water. Actions such as these are often sparked by a negative taste, smell, or appearance of their tap water (e.g., smell of chlorine). Water that looks, tastes, and smells good was almost always considered to be safe by participants. Another conception is that, "If I've never gotten sick, my water must be safe." For the most part, participants did not have any knowledge about laws concerning drinking water, who is responsible for protecting their water, or who to contact if they want additional information.

However, there was a great deal of interest among a number of participants in learning more about what is in their water, how their water is processed, what is added to it, etc. These individuals also want, or want to have access to, information about testing standards and how their water system is complying with those standards. Other participants who do not want to be notified of exact contaminant levels or minor violations often appreciated explanations of how their water is treated, but warned against "overloading" the consumer with information.

A common suggestion heard from the groups was to provide a user-friendly brochure, such as the CCR samples, inside the monthly water bill in order to give the consumer the option of reading the information or discarding it. The participants also recommended media bulletins about health issues related to drinking water, particularly via television, in order to reach a large number of people. This approach targeted people who might not receive a water bill, such as apartment dwellers, or people who might not want to take the time to read brochures or interpret charts.

In general, the information provided to participants was viewed as useful and informative, for some a cause for concern and questions about the safety of their own drinking water. Participants had a number of questions about their water, and the CCR materials provided answers to many of their immediate concerns.

FOR MORE INFORMATION:

If you are interested in more information about this project, please call the Safe Drinking Water Hotline at 1-800-426-4791.