

**NATIONAL DRINKING WATER ADVISORY COUNCIL**

**MEETING NOTES**

**NOVEMBER 15-16, 2007**

**SHERATON FOUR POINTS HOTEL  
1201 K STREET NW  
WASHINGTON, DC 20005**

**PREPARED FOR:  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF GROUND WATER AND DRINKING WATER  
1201 CONSTITUTION AVENUE, NW  
WASHINGTON, DC 20004**

### **Members of the National Drinking Water Advisory Council (NDWAC) in Attendance**

Michael Baker, Chief, Division of Drinking Water and Ground Waters, Ohio  
Environmental Protection Agency, Columbus Ohio

Nancy A. Beardsley, Director, State of Maine's Drinking Water Program, Bureau of  
Health, Division of Human Services, Augusta, ME

Dennis Diemer, General Manager, East Bay Municipal Utility District, Oakland, CA  
Bruce Florquist, Small Systems Consultant, Windsor, CO

Gregg Grunenfelder, Acting Chair (for Brian Ramaley), Assistant Secretary,  
Division of Environmental Health, Washington State Department of Health,  
Olympia, WA

Dr. Rebecca Head, Health Officer and Director, Monroe County Public Health  
Department, MI

Jennifer Nuzzo, Analyst, Center for Biosecurity, University of Pittsburgh Medical  
Center at Baltimore, MD

Blanca Surgeon, Rural Development Specialist, Environmental Rural Community  
Assistance Corporation, Santa Fe, NM

Jeff Taylor, Deputy Director, Public Utilities Division, City of Houston, TX

Lynn Thorp, National Program Coordinator, Clean Water Fund, Washington, DC

Brian L. Wheeler, Executive Director, Toho Water Authority, City of Kissimmee, FL

John S. Young, Jr., Chief Operating Officer, American Water, Voorhees, NJ

### **U.S. Environmental Protection Agency Attendees**

Pam Barr, Director, Standards and Risk Management Division (SRMD),  
Office of Ground Water and Drinking Water (OGWDW)

Jenny Bielanski, Utilities Team Leader, DWPD, OGWDW

Valerie Blank, Standards & Risk Management Branch (SRRB), SRMD, OGWDW

Ann Codrington, Chief, Prevention Branch, Drinking Water Protection Division  
(DWPD), OGWDW

Sherri Comerford, DWPD, OGWDW

Cynthia Dougherty, Director, OGWDW

Yu-ting Guilaran, Chief, SRRB, SRMD, OGWDW

Steve Heare, Director, DWPD, OGWDW

Charles Job, Chief, Infrastructure Branch, DWPD, OGWDW

Rose Kyprianou, SRMD, OGWDW

Phil Oshida, Deputy Director, SRMD, OGWDW

Brian Pickard, Water Security Division (WSD), OGWDW

Harriet Hubbard, DWPD, OGWDW

### **Designated Federal Officer (DFO)**

Veronica Blette, IO, OGWDW

### **Centers for Disease Control and Prevention (CDC) Liaison**

Vincent Radke (for Richard J. Gelting), Environmental Health Services Branch,  
CDC/National Center for Environmental Health

**Members of the Public**

Eva Brown, AMWA

Ben Cole, Student, The George Washington University (GWU)

Markus Copp, IBWA

Vanessa Leiby, The Cadmus Group, Inc.

Frank Letkiewicz, The Cadmus Group, Inc.

Rudd Coffey, The Cadmus Group, Inc.

Meredith Irwin, The Cadmus Group, Inc.

Sam Megas, LCSA, Loudoun Water

Bridget O'Grady, ASDWA

Alan Roberson, AWWA

David Springer, Student, GWU

Robert Stewart, RCAP

Steve Via, AWWA

Pat Ware, BNA

**National Drinking Water Advisory Council  
November 2007 Meeting Summary**

**DAY 1** (November 15<sup>th</sup>)  
(Agenda can be found in Appendix A)

**OPENING REMARKS**

**Greg Grunenfelder**, acting chair of the Council, opened the meeting and provided a brief overview of the agenda. Five Council members were not in attendance: Brian Ramaley, Douglas Owen, David Saddler, Richard Gelting, and Phil Singer. Vince Radke attended the meeting on behalf of the Centers for Disease Control and Prevention (CDC) in place of Dr. Gelting.

**Cynthia Dougherty** thanked the group for their attendance at the meeting and provided an update of the current activities in the Environmental Protection Agency's (EPA's) Office of Ground Water and Drinking Water (OGWDW). EPA has commissioned a Federal Advisory Committee Act (FACA) to look at revisions for the Total Coliform Rule (TCR). OGWDW continues to examine revisions to its Affordability policy. EPA received over 12,000 comments for the proposed changes.

OGWDW continues to investigate the use of carbon sequestration as a method to reduce greenhouse gas emissions. EPA intends to propose a new Underground Injection Control (UIC) regulation for this work in summer 2008. EPA submitted the proposed Airline Drinking Water Rule (ADWR) to the Office of Management and Budget (OMB). The information collection period for the 2007 Drinking Water Needs Survey and Assessment (DWINSA) closed this week. EPA expects to publish the results of the Assessment next year. The results of the Assessment will impact the Drinking Water State Revolving Fund (SRF) allocations.

The Water Security Initiative (WSI) is moving forward. OGWDW plans to expand the pilot study to between two and four systems (this number depends on the budget allocations for 2008). EPA continues to work on the third Candidate Contaminant List (CCL3) and the regulatory determinations for CCL2.

**Mr. Grunenfelder** stated that the focus of this meeting is to discuss communications. Increasingly, public concern stems from the desire to live in a risk free world, especially when the risks are introduced by people other than themselves. A person might take a risk and smoke or talk on a cell phone while driving, but will be outraged to learn of contaminant levels (however small) in their drinking water because they do not have control over such risks. There are also growing concerns about toxics in our environment. The public is more conscious of products it consumes and wants to be reassured that responsible parties are monitoring the risks association with these products.

In trying to meet these needs, the drinking water community can be challenged in how it communicates the complex and vital issues related to drinking water to the public in a meaningful way. How can utilities and governmental officials communicate the true nature of a drinking water risk?

Mr. Grunenfelder proposed that the Council focus on the following areas during its discussions:

- Communication on a daily basis: How can a utility communicate effectively on a regular basis and maintain community trust? How can the utility attract the attention of stakeholders? How can the utility communicate extremely technical issues that are wrapped in uncertainty? How can the utility translate its analysis of the water system into public health issues?
- Communication in times of crises: It is inevitable that problems will arise at the water system, especially when water is delivered at the level it is today. How can the utility effectively manage these crises situations? How can the utility or government officials compel members of the public to take necessary actions to protect themselves and to retain confidence in the water supply during the crisis event?

**Ms. Dougherty** reminded the council of the public disclosure requirements (also called “right to know” requirements) of the Safe Drinking Water Act (SDWA). The basic premise of these requirements is that consumers have a right to know what is in their drinking water and where it comes from before it reaches the tap. It is important for the public to have confidence in drinking water and to be more involved in the decisions they make for their health. EPA’s vision is, “America’s drinking water is safe, affordable, and secure everywhere, every day, and Americans know it.” This vision drives the agency to focus on communication and public education.

Ms. Dougherty outlined key EPA communication initiatives:

- Consumer Confidence Reports: The intention of the consumer confidence report is for the utility to provide an annual snapshot of local water quality and to increase the opportunity for dialogue between water systems and consumers.
- Enhanced public notification: The Public Notification Rule requires public water systems to notify the public any time they violate the National Primary Drinking Water Regulations (NPDWR) or otherwise provide drinking water that may pose a risk to public health.
- Source water assessments: Source water assessments are conducted to determine the susceptibility of the water supply to potential sources of contamination in a delineated area. EPA releases the results of these determinations to affected water systems and to the public.

- State compliance reports: States are required to submit an annual report to EPA and the public that provides information about the violations incurred by its public water systems in the previous year.

One of EPA’s key strategies in public education is to improve the general population’s baseline knowledge of drinking water issues.

**Mr. Grunenfelder** stated that the Washington State Department of Health has a similar vision statement; the Department, however, intentionally deleted the word ‘affordable’ from this statement because it is a subjective term.

### **EPA COMMUNICATION EFFORTS: EPA PUBLIC WEBSITE/OUTREACH**

*Charles Job (DWPD), Rose Kyprianou (SRMD)*

**Charles Job** described OGWDW’s outreach team. Housed in the Infrastructure Branch of the Drinking Water Protection Division (DWPD), the outreach team supports all key communication activities in OGWDW. The team’s principal outreach tool, the Safe Water website, is used to gauge visitor’s interests in terms of drinking water. The outreach team is working to develop a new web page for consumers. Mr. Job asked for six Council members to view and to react to the consumer page prior to the spring meeting.

OGWDW’s outreach team also supports the following communication initiatives:

- Safe Drinking Water Hotline
- ECSS database: an online question and answer database
- Water Resource Center: supports all programs in the Office of Water (OW)
- National Service Center for Environmental Publications (NSCEP)

**Mr. Grunenfelder** asked if the outreach team translated publications into different languages. **Mr. Job** responded that, historically, the team has translated documents into Spanish, but they are now working on Chinese, Vietnamese, and Arabic translations. The team also attempts to work translations into the initial publications (e.g., English on the front and Spanish on the back) whenever possible.

**Blanca Surgeon** commented that in most other parts of the world, tap water is not suitable for consumption. Outreach efforts should also encourage people from other countries, particularly Latin America, to drink tap water by assuring them that it is safe. **Mr. Job** responded that this is an important consideration and is something that the Outreach team will consider when developing the new consumer page.

**Rose Kyprianou** used the example of chloramines to illustrate some of the issues the Standards and Risk Management Division (SRMD) faces in risk communication. Chloramines

are often used in a public water system to disinfect but concerns have been raised that their use can cause lead to leach into the drinking water or cause skin problems and other health effects. EPA found that the traditional methods of communication were not as effective in this case. The public wanted to know if the presence of chloramines in drinking water would make them sick. EPA needs to find ways to communicate complex science in simple terms and to explain that risks are often balanced with other risks (e.g., microbial risk vs. DBP risk) and needs (e.g., affordable drinking water).

Ms. Kyprianou explained that SRMD looked at other risk communication initiatives that could be used to educate the public and to complement EPA's next steps. EPA is in the process of developing message maps for chloramines. A message map consists of three primary messages that are then supported by three additional messages that can be used to provide context for the primary message. This method is particularly useful for chloramines because the voices of those who do not share EPA's view of chloramines tend to be very strong. The message map provides EPA with a direct, concise, and strong message.

**Rebecca Head** noted that the message map can also be used to brief management or elected officials because it presents the issues quickly and clearly. **Ms. Kyprianou** added that message maps are also effective in crises and emergency situations.

**John Young** observed that American Water uses the general population as a target audience when developing communication plans. It is important to direct communication efforts to the public because activists with strong views are unlikely to change their opinion.

**Ms. Kyprianou** replied that SRMD tries to direct their efforts to members of the public that have questions. EPA also targets primacy agencies, utilities, legislators, and others who are likely to field questions and complaints by activists and the public. Through communication initiatives, EPA hopes to give a clear voice to those who are on the frontlines and must have their own voice; EPA wants to help others be confident in what they say and in the messages they relay to the public.

## **EPA COMMUNICATION EFFORTS: CCRs & GALLUP SURVEY**

*Veronica Blette (IO)*

**Veronica Blette** described another method of communication, Consumer Confidence Reports (CCRs). EPA recently redesigned the CCR rule website to include tools for states and utilities and to make the website more accessible for the consumer. The tools include the CCR*w*riter, an electronic program utilities can use to create CCRs. The feedback received to this date regarding the CCR*w*riter is positive. EPA has also developed print advertisement templates and public service announcements for states and utilities to use to publicize CCRs.

In 2002, EPA commissioned a Gallup poll and asked 1,000 people questions about their drinking water. Approximately 29 percent of those polled in the survey read their CCRs;

among those who read the CCR, 76 percent found the report useful. Ms. Blette noted that it is often difficult to generate public interest in the CCR. The utility in Bryant, Texas started to put the CCR in the form of a calendar a few years ago and it is very popular.

The results of the Gallup poll also revealed that 68.5 percent of those polled indicated they received information about their drinking water from the media, while only 31.5 percent received their information from local, state, or federal government. Approximately 79 percent indicated they trusted doctors and health professionals; 56 percent of those polled trusted the federal government. Ms. Blette stated that EPA must improve public education efforts in order to increase the public's trust in drinking water and in the utilities that provide drinking water.

### COMMUNICATING EFFECTIVELY ON A DAILY BASIS: UTILITY PANEL

**John Young** opened the discussion and stated that communication is most effective when it addresses the most important issues to the audience it is attempting to reach. Before developing communication material, the utility must determine what stakeholders would like to hear and how they would like to hear it. The challenge is that the needs of all stakeholder groups are often incompatible.

Mr. Young explained that the customer needs to know if the water is safe, if there will be enough water when they want it, and how much the water will cost. The political community and water boards/public utility commissions want to be assured that its constituents or customers are satisfied with their water, but water boards also are concerned with cost management and water rates. The environmental regulators, however, are interested to know what is really happening in the water system, regardless of the impact to public perception.

**Jeff Taylor** stated two reasons why utilities find it difficult to communicate effectively with the public. First, the public takes tap water for granted. Because it typically flows freely from the tap the public assumes that it is not difficult to keep drinking water safe and clean. Additionally, as the quality of drinking water improved in the twentieth century, the link between drinking water and public health became less evident to the public. Mr. Taylor noted that up until the 1940's his local newspaper still printed deaths attributable to cholera from drinking water. Now that there are no longer deaths, people do not understand the direct link between safe water and health.

**Brian Wheeler** agreed with Mr. Taylor's statement. Mr. Wheeler added that most utilities react to news instead of putting news out. If a utility does its job well, it is not visible in the community unless it puts information out for the public. He noted that, although it is challenge, utilities, particularly small and medium utilities, need to become more visible in the community and connect with stakeholders and customers.

**Dennis Diemer** observed that ongoing communication is essential to gaining the trust of the community. If utilities do not make the effort to reach out to their community, the only time the community will hear from the utility is in a time of crisis. When a utility maintains an open line of communication, it builds trust and will make it easier to manage crisis situations.

**Mr. Young** added that communication is an important issue for American Water. The organization is able to communicate at a local, regional, and national level but national branding is more of a challenge. Drinking water is a local business. Communication is most effective at the local level. If utilities communicate with the community in non-crisis situations as much as possible, then the community will recognize the utility and its spokespeople during times of crisis.

**Mr. Diemer** noted that utilities should relay messages multiple times and in multiple mediums to ensure that the messages reach the public. **Mr. Taylor** added that messages should also be concise and stated in simple, clear terms. Utilities should learn to talk to their audience about the issues they are most concerned about and relate these issues back to creating clean water and reducing the potential for risk.

**Mr. Grunenfelder** commented that he is coming to this group as a drinking water regulator whose agency is included in the Department of Health. He asked the utility panel if their experiences with regulators were generally successful or if they find that the two groups often work towards cross purposes? What are the key aspects that contribute to the success or to the conflict? What recommendations would the utility panel offer to those in regulatory positions?

**Mr. Diemer** responded that he recently worked with the state public health department on two efforts: the installation of scrubbing system (the community was concerned about emissions that would result from this project) and the requirement to install backflow prevention devices. In both cases, the state health department developed a strong, clear, and effective message to convey the benefits and risks of the scrubbing system and the need for backflow prevention. Mr. Diemer felt that the community was satisfied with the state's response.

**Mr. Wheeler** stated that the regulator and the utility must have a consistent message. If the public receives conflicting messages from multiple entities, it is difficult to determine the correct message.

**Mr. Young** added that when state health departments bring an unbiased opinion to a situation, it can raise the credibility of the utility.

**Mr. Taylor** agreed with Mr. Wheeler and Mr. Young. It is crucial for utilities to maintain an ongoing relationship with the regulatory community. A partnership between the City of Houston, state regulators, and the environmental community successfully persuaded elected officials to approve a sewer ordinance.

**Rebecca Head** asked the utility panel if representatives from their facilities worked with local public health officials in public outreach efforts.

**Mr. Taylor** replied that his utility initiated a conversation with local public health agencies several years ago. While the relationship between the two parties is amicable, it will require a lot of work to bring them together for a joint outreach program. It is difficult for both groups to remain focused on drinking water when there are so many additional public health concerns that local public health agencies must manage.

**Mr. Diemer** stated that while his utility has worked with the state Department of Health Services, there is less communication between the utility and the local county public health departments.

**Nancy Beardsley** commented that in Maine, the state drinking water department is housed in the public health department. Public health is therefore the primary mission of the drinking water department. The public health department has a close relationship with utilities because they regulate them.

**Ms. Surgeon** asked how the utility panel if their utilities communicate primarily through a website. Do the utilities monitor the number of people that access their website?

**Mr. Young** responded that while American Water monitors the number of hits they receive, the website isn't their primary communication tool. Ideally, the organization would like the public to use the website to gather general information, but when dealing with specific issues American Water prefers face-to-face contact with the community and newsprint articles.

**Mr. Diemer** commented that the number of people that visit his utility's website increases annually. He views the website has an opportunity for customers to become acquainted with the facility. The utility tries to emphasize phone numbers on its website so that face-to-face contact is always available to the consumer.

**Mr. Wheeler** added that his water facility uses the website as a service vehicle; posting routine and basic information on the website reduces the call volume for the utility. It is Mr. Wheeler's experience that there is not one specific message or language that can reach every member of the community. In order to reach customers, utilities should employ multiple methods of communication.

**Mr. Taylor** added that the web will become more important in the future, but utilities must always consider multiple outlets for communication. Mainstream media messages do not always accomplish the intended goal.

**Jennifer Nuzzo** stated that while the Council and EPA are correct to reevaluate the utility of the CCR, the CCR has benefits. One of the benefits of the CCR is internal communication.

The creation of the CCR each year provides a unique opportunity for departments within large utilities to come together, share information, and ensure that all involved are working towards the same goal.

**Mr. Young** observed that one of the challenges all utilities face is the reluctance to discuss bad news. Utilities are always willing to share good news with the community but these messages are not always effective when relayed on their own. The public tends to pay more attention to water utilities during times of crises or when there are problems at the facility. Utilities should be encouraged to use such opportunities to convey other messages (e.g. infrastructure needs, the need to increase water rates).

**Ms. Blette** noted that the community of Bryant, Texas recognizes those who work at the water utility through their CCR calendar. To what extent are facilities using their employees as vehicles of communication?

**Mr. Taylor** responded that the Houston utility, a system that also sells wholesale water to local utilities, sends employees who are not involved in management out to neighborhoods surrounding Houston to talk about the utility.

**Mr. Young** noted that American Water developed canned presentations for local speakers. Utility employees like to talk in the community but often do not have the time to put together a presentation. The utilities can use these presentations as a starting point and can then add more information specific to their facility.

**Bruce Florquist** cautioned that in order to use employees as an effective means of communication the employees must convey correct information. If the community is misinformed, employee outreach can have the opposite effect.

**Mr. Grunenfelder** relayed discussion points submitted by **Douglas Owen**, a member of the Council that was unable to attend the meeting. In his written statement, Mr. Owen highlights the difficulty and complexity of truth and fear in the community. Utilities should be honest, should explain their opinions instead of defending them, should be open to other opinions, and should respect the audience and where the audience is coming from. Utilities should realize that the public does want to understand these issues. Instead of dismissing the public because they do not have the same technical background, the utility should think of other ways to convey their messages. Mr. Owen questions the value of traditional written communication. He has come across utilities that use YouTube clips successfully for internal and external communication.

## COMMUNICATING EFFECTIVELY ON A DAILY BASIS: PUBLIC AND STAKEHOLDERS

**Ms. Nuzzo** opened the discussion by describing a new trend in risk communication. Ms. Nuzzo explained that risk communication is traditionally viewed as a way to convey information to the public in order to reduce panic. Recent studies in disasters and emergency preparedness revealed that the opportunity for communication must begin earlier.

Ms. Nuzzo introduced the idea of pre-event partnerships. The goal of such partnerships is to equalize the weight and the importance of different stakeholders in the communication process. These partnerships are beneficial in crisis and non-crisis situations. During a crisis, it is important for vital information to reach those who are in charge but also to reach those at a lower level. If all involved in crisis management are aware of the same, clear goal, communication is more unified and credible. She noted that accomplishing this means a change in mindset from “incidents to individuals and from processes to people.”

Public resources are overwhelmed quickly in a time of crisis. Pre-event partnerships (particularly those with local businesses) can offer the utility an opportunity to set up arrangements to outsource their needs during a crisis. **Mr. Grunenfelder** added that public meetings can be viewed not just as an opportunity for education but as a partnership opportunity. Mr. Grunenfelder found that hosting an open house before a public hearing helped to promote interaction with the members of the community that attended the hearing.

**Mr. Florquist** commented that oftentimes, members of the public do not attend public hearings and will only be concerned if a problem arises at the utility. He emphasized the importance of knowing the audience and tailoring communication efforts to that audience, particularly in areas with diversity in cultures and languages. Mr. Florquist also stated that cooperation with the local media is essential to effective communication. Utilities should make media contacts early so that, if there is a crisis, the contact will come to the utility for information.

**Vince Radke** mentioned that the CDC is faced with similar communication problems. When CDC develops educational material they tailor the language to a fourth grade level; this covers more than 90 percent of the population in the United States.

**Dr. Head** added that utilities should focus communication efforts out in the community as opposed to expecting the community to come to the utility.

**Lynn Thorp** stated that the Clean Water Fund also encounters communication challenges. The founding principle of the Fund is to organize and mobilize people to participate in the decisions that affect their lives. However, the partner organizations to the Fund, as well as the audiences they target, are not homogenous and don’t always agree on all issues. Therefore, the Clean Water Fund attempts to generate enough interest in an issue to encourage members of a community to participate in a meaningful way.

Ms. Thorp used the examples of lead in Washington DC and global climate change to illustrate communication challenges. The goals of the lead outreach program were to inform the community about ways to protect themselves and to get members of the community involved in a longer term discussion about source water protection. The fund tried to use the negative situation to promote a positive message. Because the Fund could not independently verify their information, they did not know what to tell people. Alarm is not effective in this situation, but what is the best way to communicate uncertainty? In addition, the active, engaged consumers were not necessarily the most at-risk or affected by the problem. What is the best way to turn this into a longer term initiative?

The goal of the Clean Water Fund's global climate change initiative is a longer-term fundamental transformation. Alarm is most likely useful in this case. Through the DC lead and the global climate change initiative, the Clean Water Fund's goal is to offer people practical advice and motivate them for long-term engagement in the issues.

Ms. Thorp noted that in many cases we are saying similar things, but we all think a person is listening to somebody else. We are all trying to get attention, but the Gallup survey results show that utilities and environmental groups are about equal when it comes to reaching the consumer. She noted that drinking water is a unique issue in that we have common interests in engagement that might not exist for other issues her organization works on.

**Ms. Surgeon** commented that communication among small rural communities is often difficult. The first issue is audience. It is a challenge to convince community members to attend the meetings. How can the utility communicate information if no one comes to hear the information? The second challenge is to convince people to pay for water. It is difficult to overcome the mentality of "water used to be X amount, I will not pay more than that amount." The final issue is community involvement. What methods can be utilized to encourage members of the community to volunteer to sit on local water boards and to be involved in the community's drinking water decisions?

Ms. Surgeon emphasized the importance of the capacity building program. Once utilities are able to communicate the need for capacity, people begin to understand that water cannot be free. Ms. Surgeon suggested that EPA develop pilot studies to fund web pages for small communities to see if it is an effective method of communication. Ms. Surgeon also suggested that, because EPA, the states, and utilities, successfully promoted water quality, they should shift focus to water quantity. If the utility restricts water quantity, then the community will begin to pay attention.

**Ms. Blette** relayed examples of community engagement for **Mr. Owen**. Mr. Owen described one utility that, after receiving numerous taste and odor complaints from a small set of customers, enlisted these customers to participate in panels and used them as an early warning system for drinking water problems. The water utility in Tucson hosted water tasting sessions at local shopping malls and asked for input about the treatment options presented. In the end,

the public chose a higher cost option because they felt more involved in the process and because they were able to make an informed decision.

**Ms. Surgeon** mentioned that the Council discussed asset management plans during the May meeting. She asked if EPA could update the Council as to where EPA is in that process. **Ms. Blette** responded that EPA encourages large systems to write asset management plans. EPA is in the process of developing a program for small systems to use to write asset management plans.

## EPA COMMUNICATION EFFORTS: RISK COMMUNICATION

*Brian Pickard (WSD)*

**Brian Pickard** provided an overview of the risk communication aspects of EPA's Water Security Initiative. The Water Security Initiative is an EPA program that addresses the risk of international contamination of drinking water distribution systems.

EPA formed the initiative in response to Homeland Security Presidential Directive (HSPD) 9, under which the Agency must "develop robust, comprehensive, and fully coordinated surveillance and monitoring systems, including international information, for...water quality that provides early detection and awareness of disease, pest, or poisonous agents." The core objective is an exercise in data management. The Water Security Division (WSD) in OGWDW designed a contaminant warning system that assesses the events at a water system on a real-time basis in order to identify anomalous events.

EPA performed a pilot test of the contaminant warning system at the Greater Cincinnati Water Works (GCWW). EPA also initiated a consequence management plan at GCWW. This plan outlines actions taken to plan for and respond to potential drinking water contamination incidents. The goal is to minimize response and recovery timelines through a pre-planned, coordinated effort. Risk communication is a major factor in consequence management. Effective risk communication can rally support, calm a nervous public, provide essential information, and encourage cooperative behaviors during a crisis event. GCWW's consequence management plan includes a Crisis Communications Plan that details the responsibilities of the Public Information Officer (PIO) during all phases of a contamination event. EPA and GCWW integrated message mapping into the Crisis Communication Plan to help the utility to communicate effectively during emergencies. The Crisis Communication Plan also includes an incident command system that outlines coordination with other public affairs agencies to minimize misstatements and to promote speaking with one voice.

**Mr. Young** commented that while some of the steps presented in the system architecture chart are very straightforward, some of the steps are unclear. Customer complaints, for example, can vary widely. Are there any questions that a call center representative should ask the customer in order to organize the calls in the database?

**Mr. Pickard** replied that one of the goals of the project is to develop a sustainable method of data collection that does not change the way the system does business day-to-day. The team tried to develop ways to capture existing data and send it through an algorithm that would look for anomalous events. So, for example, once a call is designated as a water quality problem, it gets pulled into the data system for further consideration.

**Dr. Head** asked if the utility will be collecting public health data.

**Mr. Pickard** responded that the public health data will be collected outside the utility in most cases. Ideally, the system would use data that is already collected by the local public health department. This data exchange would also help to strengthen the utilities ties to the public health community.

**Dr. Head** added that some public health agencies collect data about vulnerable populations; this would be a nice piece to add to the data collection at the water system.

**Mr. Young** asked if the public health data is collected in real time.

**Mr. Grunenfelder** responded that public health agencies do not collect data in real time, but CDC is currently funding an environmental health tracking project. As this project unfolds public health agencies will be better positioned to provide this data.

**Mr. Radke** added that the CDC maintains many different data sets but they are not integrated. The CDC's waterborne surveillance system is very poor and foodborne surveillance usually takes about 2 weeks to get to the state health department (about 1 week in best states).

**Ms. Surgeon** inquired about the relationships between the consequence management plan and the emergency response plan.

**Mr. Pickard** replied that the consequence management plan should be incorporated into the utility's overall emergency response plan. The consequence management plan is a specific plan used for contamination at the water distribution system but could also be used as a template for another emergency event.

**Mr. Taylor** applauded the water security initiative and added that it will be very helpful to the industry. He asked if the procedures described would also apply to a water utility that is integrated into larger government infrastructures. In Houston, the city's management plan quickly falls apart during a crisis because there are public information officers in many departments, all vying for attention.

**Mr. Pickard** responded that the consequence management plan is most effective when built from the ground up. Utilities can develop the plan internally and then use the draft plan to initiate discussion with other response partners. At GCWW, the utility identified the response

partners early and brought them to the table to discuss their opinions of their respective roles in the consequence management plan.

**Mr. Taylor** asked if GCWW discussed the response plan with local law enforcement.

**Mr. Pickard** agreed that local law enforcement can impede the resolution of a contamination event because they may prevent the water system from sampling the water. During the pilot study, GCWW integrated local and regional law enforcement into the consequence management plan and outlined their specific roles and responsibilities during the contamination event.

**Mike Baker** added that it is important to outline the messages delivered from each response partner in addition to their roles and responsibilities. All involved must have a clear understanding of the message and the way that they will communicate that message during a crisis.

### COMMUNICATING DURING A CRISIS: UTILITY PANEL

**Mr. Young** stated one of the biggest challenges is choosing a spokesperson for a crisis event. Who is an appropriate representative? When does the spokesperson lose control to someone else? Mr. Young noted that utilities prefer to be open and honest with their customers during a risk event but they also do not want to speculate. Customers want to know if they can drink the water. The utility makes a decision for them in telling them not to drink the water. Is this the most effective approach?

**Mr. Taylor** added that as utilities increase in size, communication decisions become more complicated because there are more agencies and voices involved during the event. Mr. Taylor would like to see an outside leadership determine the role of water agencies with respect to other agencies, especially the police department.

**Mr. Diemer** commented that utilities must be proactive during a crisis event, especially if it will make the news. Utilities should reach out to the press before outside opinions influence their decisions.

**Mr. Wheeler** stated that one of the biggest lessons southern utilities learned during the 2004 hurricane season is the importance of one unified message. During hurricanes all state agencies and federal agencies compete for the public's time. Each water utility has a limited window to relay messages to their consumers. Boil water emergencies, while not as wide-reaching as hurricanes, are also a problem. Mr. Wheeler explained that it is very difficult for his utility to inform its customers about boil water orders because half of the customers do not read the paper, listen to local radio, or watch television.

**Mr. Young** commented that lawyers are often involved in communication decisions, especially when the utility is liable for damage. Communication statements must read “back to compliance” not “water is safe,” for example.

**Mr. Taylor** noted that as scientists and engineers, water utility personnel feel the need to explain everything. This method is not always the most effective. Utilities should develop short sentences with defined messages to communicate with the public.

**Ms. Kyprianou** added that some utilities argue that because they will never be able to fully prepare for an event, it is futile to invest time and resources to emergency response plans. The utility will have to determine how to deal with a crisis situation when that crisis event happens. Ms. Kyprianou asked the utility panel if they advocate pre-planning or is there a happy medium between pre-planning and addressing crisis situations as they arise?

**Mr. Diemer** responded that after a utility discovers the amount of time and resource expended while recovering from a natural disaster, the pre-planning and having tools in place makes sense.

**Mr. Young** noted that many utilities do not have the resources to develop such plans.

**Dr. Head** mentioned that public health agencies, water utilities, fire departments, police departments, and other agencies develop crisis communication or emergency management plans independent of one another. There must be a way for these agencies to coordinate their efforts. Dr. Head also noted that it would be helpful for EPA to develop templates or guidance to help water systems to develop simple management plans and to communicate very basic messages to the public.

## **COMMUNICATING DURING A CRISIS: GOVERNMENT OFFICIALS**

**Mr. Grunenfelder** opened the discussion and stated that the amount of technical information available today doubles every two years. By the year 2010, the amount of technical information available will double in size every 72 hours. With so much information out there, how can the water system connect to its customers? Mr. Grunenfelder used the example of West Nile virus in Washington State to illustrate this problem.

West Nile virus has not reached Washington State. The Department of Health (DOH) is trying to inform the public of preventative measures to take before the virus reaches Washington. But communities will not pay attention to this information until the virus impacts them directly. Crises provide one of the few opportunities to deliver key information to the public and should not be avoided. When the media discovers a crisis situation and is the first to report it, Washington DOH finds that the utility and the public health officials must react to the messages of the media. If the utility and the public health agencies can publicly address the issue first, they can set the tone and control the message. Messages should be

specific, clear, and concise and should be relayed in a compassionate and concerned tone. The state should also be prepared to intervene if a utility will not communicate with the public. In WA, the state has provided templates for boil water advisories so that when lab results come in, advisories can be issued quickly.

**Mr. Baker** commented that states may have to manage an emergency that affects a large number of utilities. In this case it is important for all utilities affected to have access to the same information and to be willing to deliver the same message to the public. This is often a challenge because of the uncertainty of the risk associated with water emergencies. Smaller incidences, such as a water main break and de-pressurization, also present similar challenges. The utility (or the state) must determine the real risk, which customers will be impacted by the break, and what measures they will ask their customers to take.

Mr. Baker also stated that the state must maintain communication with its response partners: the utility, state and local health officials, and emergency management agencies. When addressing the public, the goal is to provide the public with the information they need to make an informed decision about their personal safety. The state of Ohio established a statewide emergency response team that will focus on communication between the state and the utility and between the state and the public. The state is also initiating a campaign to highlight the value of tap water.

**Mr. Radke** described the environmental health specialist initiative, a CDC project that evaluates past surveillance for waterborne disease. The initiative examines state public health records to find waterborne disease outbreaks that were not detected or were not reported. One of the objectives of this project is to determine the lines of communication that should have been in place during the outbreak but were not.

**Dr. Head** stated that at the local level they have developed a risk communications plan with template messages to use in an emergency situation. Most state public health agencies also work with local agencies to create an electronic system called a health alert network so that all are aware of public health emergencies throughout the state. Dr. Head also commented that public health agencies are realizing the need to market themselves and the benefits they provided to the community. One way to connect to a community is to tell a story. Dr. Head referred the Council to a book entitled *Made to Stick* by Chip and Dan Heath. The authors emphasize the importance of relaying facts and figures to the public in a meaningful and memorable way. Dr. Head suggested that local public health agencies and utilities could tell a story about a crisis event before the event occurs. The story could give the public a sense of who to call and what to do in a crisis situation.

**Mr. Young** asked if the role of the utility or government is to distribute information to the public to make an educated decision or to make the decision for the customer.

**Mr. Grunenfelder** responded that Washington DOH tries to give the public simple, practical measures that they can take to protect themselves.

**Mr. Radke** added that CDC prefers to put out the main message (e.g., do not drink the water) and then give the public a list of resources to refer to for more information.

**Mr. Baker** agreed with Mr. Radke. When a utility, state, or other agency delivers messages to the public they need to know what happened, why it happened, what the potential risk is for their tap, and what specific actions they can take to protect themselves and their families. It is difficult for a utility to decide what specific users should do in an event that has a known impact to the system, but where water quality issues or other potential problems are unknown (e.g. vandalism). The utility should inform the public of such an event, but it can not always tell the public what to do in the situation.

### PUBLIC PARTICIPATION

*There were no public comments.*

### POTENTIAL EPA EFFORTS TO ENHANCE COMMUNICATION

**Dr. Head** distributed a brochure entitled, "Healthy Water for Healthy Communities" that describes an American Water Works Association (AWWA) water and health workgroup. It is difficult to engage the public health community in drinking water issues. The group works to target two audiences: medical care professionals and local public health departments. Medical care professionals are concerned with the individual and the public health departments deal with the community as a whole. The workgroup coordinates its efforts with CDC and the Association of State Drinking Water Administrators (ASDWA), works with the American Dental Association on fluoride issues and works with the National Association of County and City Health Advisors (NACCHO) on emergency preparedness and response. The workgroup supported a water health connection website that offers physicians a continuing education credit on water and public health.

**Ms. Blette** added that physicians have very little time to learn about drinking water issues, but the nursing community is more engaged and also have more patient contact. This could be a community to reach out to.

**Mr. Grunenfelder** asked the group to identify key issues from the Council's discussions and to form recommendations to EPA regarding communication.

**Ms. Surgeon** suggested that EPA commission another Gallup poll to determine the effectiveness of the CCR before making changes to the existing regulations.

**Mr. Young** added that EPA needs to determine if the CCR is effective.

**Dr. Head** asked if EPA receives many calls regarding the CCRs.

**Harriet Hubbard** responded that there is a spike in phone calls in the two months following the release of the CCR reports. Most callers are confused; they do not understand the purpose of the report or its contents.

**Ms. Thorp** commented that it would be difficult to remove a source of information that is already in the public domain. Also, it is impossible to determine the number of people that found the answers to their questions in the CCR and did not call the hotline. EPA's time is better spent modifying the CCR to improve its effectiveness and to incorporate some of EPA's other communication goals.

**Mr. Diemer** noted that an annual survey of his utility revealed that a very small percentage of customers remember receiving the CCR. The majority of calls fielded at the utility regarding the CCR are from customers who do not understand the information included in the report.

**Mr. Radke** inquired about the intent of the CCR when the law was passed.

**Ms. Dougherty** responded that the purpose of the CCR is to ensure that customers can access annual information about contaminants found in their drinking water. The intent is to provide customers with a base level of information about their water. The CCR rule requires utilities to present the information in a certain way so that the CCR is not viewed as a public relations piece. The world is different now than it was when EPA designed the rule. Perhaps it would make more sense to provide a link to the CCR in each water bill instead.

**Mr. Young** observed that the CCR violates the criteria for good communication; it is complicated, long, confusing, and very technical.

**Mr. Diemer** commented that if there were different levels of information provided in the CCR based on interest, utilities could explore alternate ways to convey the messages of the CCR to consumer groups.

**Mr. Taylor** states that the City of Houston examined their CCR 2 years ago. After reviewing CCRs from all major utilities in Texas and in other states, the City found that the CCR format is fairly consistent. Most utilities present the monitoring data in a large table. This can be overwhelming for the average customer. Perhaps it would be more effective for the utility to use the table to report only those contaminants where it exceeded the standard.

**Ms. Thorp** suggested that EPA form a focus group for consumers to evaluate the effectiveness of the CCRs that will be released next June. EPA could also poll utilities and consumer environmental groups for information that they have gathered about the response or impact of CCRs. EPA could use both sets of information to drive CCR revisions.

**Mr. Wheeler** commented that more information should be included in the CCR than what is already required. Utilities should view the CCR as an outreach piece and find a way to present the data in a way that is more concise and accessible.

**Ms. Surgeon** noted that the CCR is an important part of communication and the NDWAC should determine if it is effective or not.

**Ms. Blette** stated that it is difficult to determine what information is appropriate to distribute to the public. Utilities want to inform their customers about their water, but they do not want to confuse them with complicated data and monitoring results.

**Mr. Taylor** observed that utilities often hide behind EPA. In the CCR, utilities report that they are compliant with the standards, but they do not take it any further to make claims about the drinking water.

**Mr. Young** added that utilities often include the zeros because utilities do not want the customers to assume that they have detects for every contaminant that they monitor for.

**Dr. Head** observed that it might be useful for EPA to consult communications specialists to help develop different versions of the CCR that may be more palatable to consumers.

**Mr. Flourquist** mentioned that the questions he receives most regarding drinking water contaminants are not regarding complicated chemicals, but about simple contaminants such as iron, lead, and fluoride.

**Mr. Wheeler** added that the basic message of the CCR should be simple—is the water safe to drink? The CCR could include additional sections for those customers who would like additional information, but the summary section should be very simple.

**Mr. Diemer** stated that EPA should gain a better understanding of the existing CCRs. Why do customers decide not to read the report? If consumers read the report, was it helpful? What information would customers like to see in the report?

**Ms. Nuzzo** commented that she does not receive a CCR each year. Ms. Nuzzo suggested that the methods of communication are flawed.

**Ms. Dougherty** replied that she frequently sees news reports related to CCRs.

**Ms. Nuzzo** also noted that utilities should attempt to use the report as an opportunity to communicate other types of information or outreach.

**Mr. Grunenfelder** agreed with Mr. Diemer and Ms. Surgeon about the need for a focus group or workgroup for CCRs. Mr. Grunenfelder observed that one of the themes from the Council's earlier discussions was the value of templates, canned presentations, and message

maps to the utility's crisis management. Perhaps NDWAC should identify priority issues (e.g. fluoride and lead) and then recommend that EPA develop templates and model presentation for utilities to use in crisis situations or for daily communication about these issues.

**Ms. Surgeon** proposed NDWAC establish a workgroup to examine communication issues. The workgroup would have four tasks: (1) to build support of future investment in drinking water infrastructure; (2) to engage communication partnerships; (3) to examine existing communication tools (e.g. websites) to see if they can be applied to other systems that struggle with communication (primarily small systems); and (4) to examine the relationship between health departments and drinking water utilities and identify models of effective collaboration between the two.

**Mr. Baker** stated that EPA is currently working on the fourth point in some capacity. Although the primary focus of the EPA and CDC conference in June was waterborne disease outbreaks, the conference revealed the need to improve communication between drinking water and public health programs, whether they are in the same department or not.

**Ms. Thorp** observed that in the period since the Council's previous meeting, there was a dramatic switch in the public perception of bottled water. This presents a unique opportunity for EPA, state and local regulators, and environmental outreach groups to promote the value of tap water.

**Mr. Grunenfelder** commented that collaboration between utilities and state public health departments is important. The focus of public health officials shifted away from environmental health towards drinking water issues towards wellness, nutrition, and chronic disease. EPA should work with the Association of State and Territorial Healthcare Officials (ASTHO) to bring more attention to drinking water.

**Mr. Young** mentioned that one of the recommendations of the affordability workgroup was a public education program about the value of water. Mr. Young suggested that every EPA communication should include several sentences about the economic, environmental, and social benefits of drinking water. Utilities and states could eventually adopt these key messages and together present a unified message about the value of drinking water.

**Mr. Baker** noted that the consumer web page described by Chuck Job earlier in the meeting was a great idea. Several Council members volunteered to review this web page next year.

**Ms. Surgeon** motioned to recommend the communications workgroup.

**Ms. Dougherty** asked if the Council is aware of AWWA's "Tap Water Delivers" campaign.

**Mr. Diemer** added that AWWA also published a series of studies that outlined strategies for water systems to use to quantify investment needs and to convince decision makers of these needs. Several of these publications discuss ways to communicate infrastructure needs.

**Mr. Wheeler** mentioned that the Water Environment Federation (WEF) developed pre-packaged information about infrastructure needs in a series entitled “Infrastructure Delivers.” Mr. Wheeler stated that NDWAC should not try to duplicate the efforts of other organizations.

**Ms. Dougherty** stated that if NDWAC makes recommendation to EPA to use its resources, the Council must consider if EPA’s work could provide a meaningful contribution to work that is currently underway or if EPA has a voice that is different from what is already available about the topic.

**Ms. Surgeon** responded that small systems do not access information from WEF, AWWA, or other large water organizations. EPA should determine how to pass such information on to medium and small utilities.

**Ms. Nuzzo** asked if other organizations have published materials about the value of infrastructure and water that target political leaders.

**Ms. Blette** responded that AWWA developed template power point presentations about this topic for utility managers.

**Mr. Flourquist** added that these materials are only available to AWWA members. This information does not reach small communities that cannot afford to belong to AWWA.

**Ms. Nuzzo** noted that political leaders often like to hear what decisions their peers make in terms of water infrastructure so that the concepts do not sound abstract. Political leaders are often busy; briefing materials must relay a simple message – what are the strategic advantages of making the investment up front.

**Ms. Thorp** wondered if there is a role for EPA to ensure that existing tools and guidance are in the hands of all who need them.

**Ms. Dougherty** reminded the Council of EPA’s sustainable infrastructure initiative. Water infrastructure is one of the Administrator’s four priorities. Ms. Dougherty asked the Council if there is something that EPA (or any other organization) is not doing on this front.

**Ms. Blette** observed that the amount of information available for utilities is often overwhelming. How can EPA collect this information and then distribute it to interested parties?

**Mr. Grunenfelder** replied that EPA web pages for utilities and for customers (as discussed in Mr. Job’s presentation) could be another vehicle for distributing EPA publications.

**Ms. Nuzzo** asked how EPA typically distributes tools and guidance manuals once they are published.

**Ms. Blette** responded that the focus is typically to complete the project. After each publication, EPA sends a press release, posts a notice on the website, and distributes it to states, regions, and some members of the media.

**Mr. Baker** agreed that the volume of information available is overwhelming. Mr. Baker added that it would be helpful for EPA to review existing documents and catalog those that are still relevant so that interested parties do not have to sort through hundreds of publications to find useful information.

**Ms. Dougherty** noted that EPA is working on a publication database and search engine that is more user friendly than the current system.

**Ms. Thorp** proposed that the Council take advantage of the shift in public perception of bottled water and use this as an opportunity to communicate the value of tap water.

**Mr. Taylor** observed that historically, federal agencies, state agencies, utilities, non-governmental organizations, and professional organizations initiate their own drinking water campaigns, even though the messages conveyed are very similar. It would be useful for these entities to determine how to leverage their assets and resources and integrate them across organizations to publicize a common message.

**Mr. Young** added that many organizations already have resources available but the distribution of their message would be stronger if it came from a more integrated group.

**Mr. Grunenfelder** asked what recommendations the Council should make to EPA in light of its discussions about communication.

**Mr. Diemer** responded that the organizations and associations previously mentioned are often marketing a particular point of view. Mr. Diemer stated that he does not think that EPA's role should be to market on behalf of the drinking water sector.

**Ms. Dougherty** added that the Agency has its own message about the value of water and infrastructure. What is the best way for EPA to get this message to the public? What other steps can EPA take? How can EPA best focus their resources?

**Mr. Grunenfelder** stated that there is a general consensus from the Council regarding the importance of an EPA website for consumers and for EPA to revisit the CCR.

**Mr. Wheeler** added that EPA could also develop general emergency management plans for states and utilities.

**Mr. Baker** noted that EPA should look to improve mechanisms for EPA to distribute existing information to interested parties.

**Ms. Surgeon** recommended that NDWAC form a communications workgroup, as described earlier in the discussion.

**Ms. Dougherty** replied that while the communication issues described are important, the workgroup needs a clearly defined charge for EPA.

**Mr. Wheeler** commented that water organizations and utilities need to work together to convey a clear, consistent message.

**Mr. Florquist** added that those who make policy decisions should also be involved in this communication effort.

**Ms. Blette** noted that EPA has a local government advisory committee (LGAC). The Council could coordinate communication efforts with LGAC.

DAY 2 (November 16<sup>th</sup>)

### UPDATE ON SMALL SYSTEMS SUBGROUP

*Blanca Surgeon, Jenny Bielanski (DWPD)*

**Ms. Surgeon** provided an update on the work of the NDWAC Small Systems Subgroup. The subgroup was formed in December 2006 to continue discussion of: the small system operator workforce, characteristics of small systems, the proliferation of small systems, availability of technical assistance and training to small systems, regional differences among small systems, and affordability.

**Jenny Bielanski** noted that EPA provided small system guidance materials to the subgroup to supplement their discussions. EPA recently published a compendium of state statutes, regulations and policies regarding restructuring.

**Ms. Surgeon** stated that a recent topic of discussion among the small systems subgroup is the cost of small system operations. Restructuring efforts are successful in many states. It is often difficult for small communities to afford capital improvements. The subgroup thinks that a conceptual modeling of full cost pricing for the entire water system could be a selling point for small communities to restructure. It is important for communities to understand the real costs of water system operations.

**Mr. Taylor** added that EPA offers rural and small systems a lot of financial and operational guidance but most small systems can not afford to make the changes needed. Mr. Young also introduced the concept of resource sharing. The idea is for a larger utility, government entity, or other third party to assume control over the small system's regulatory compliance, billing, and financial management so that the small system operator can spend his or her time building and maintaining water infrastructure.

**Mr. Grunenfelder** commented that a document outlining the true cost of operations of a small system would be useful in policy discussions. In Washington, the legislature continues to approve the construction of new small systems without considering if the system will be sustainable in the future. Mr. Grunenfelder described a water system and acquisition rehab program in Washington State. The legislature allocated grant funds to the program to help restructure failing water systems. These grants are awarded to larger systems that are willing to assume ownership of a small systems but not their financial burden.

**Dr. Head** asked if, in a resource sharing situation, the quality of water will remain adequate for the smaller utility's customers.

**Mr. Florquist** stated that there is another subset of small systems that have money but are unwilling to raise water rates in order to pay for capital infrastructure improvements.

**Ms. Beardsley** asked if the group had distinguished between small utilities and public water systems managed by mobile home parks or homeowners associations.

**Ms. Surgeon** responded that the subgroup did not consider that scenario. The subgroup did differentiate between urban small systems and rural communities. A future investigation of full cost pricing should include examples for different small system categories.

**Mr. Young** mentioned that all regulated small private systems base their water rates on the true cost of operation. This information is available through state regulatory commissions. He noted that in looking at true costs, one should not try to identify system standard capital costs because they will vary significantly based on age, source, and many other factors. Mr. Young added that one of the challenges of consolidation is convincing the small community that the larger system will provide the same level of service to its customers in the future as the small system did in the past.

**Ms. Thorp** suggested that EPA define the universe of small systems. Some people have a perception that small systems are remote, poor, etc. This may be true for some small systems, but is not indicative of the universe. Political leaders and water organizations that consider policy questions might not be aware of the different types of small systems and the challenges that each type faces.

**Mr. Baker** added that there is a tremendous amount of work that EPA and other organizations have completed recently regarding small systems. The state, EPA, and water organizations need to work together to ensure that these resources reach everyone who needs them.

**Mr. Young** emphasized the importance of policy decisions to cost structuring and rate design. Pennsylvania, West Virginia, and New Jersey Commissions allow single tariff pricing. The water bill includes a volumetric charge and a fixed charge. The fixed charge should be set at a level that will support the water system in dry and in wet seasons.

**Mr. Grunenfelder** stated that small systems should be an agenda item for at least one NDWAC meeting per year. The first discussion topics could be: (1) determining the universe of small systems and the guidance tools currently available for these systems; and (2) public policy issues and the total cost of small system operation. Ms. Surgeon agreed.

## UPDATE ON PERFORMANCE MEASURES SUBGROUP

*Yu-ting Guilaran (SRMD), Jeff Taylor, Nancy Beardsley*

**Yu-ting Guilaran** described the progress made in the performance measures subgroup. EPA would like to move forward with performance measures for total trihalomethanes (TTHM) and *Cryptosporidium* (*Crypto*). The idea is to establish a baseline to which health based outcomes can be measured and to set a target for 2014. EPA would like to propose the

measures by May 2008 and incorporate the measure for the strategic planning period 2009 – 2014.

**Frank Letkiewicz** provided an overview of the proposed performance measures. For the TTHM measure, the subgroup proposes to use the risk assessment methods in the Economic Analysis (EA) from the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2) to estimate reduction in bladder cancer cases. In the Stage 1 EA, one of the key baseline assumptions is that there are 56,500 new cases of bladder cancer each year. It is estimated that, pre-Stage 1, an estimated 15.7 percent of bladder cancer cases (8900 cases) were attributable to disinfection byproducts. EPA will use a simple linear relationship between changes in the national average TTHM concentrations and changes in the annual cases of bladder cancer attributable to disinfection byproducts.

In 2008, EPA will make an initial estimate of avoided bladder cancer cases based on available monitoring data. The final performance measure will be made using monitoring data available from Stage 1 and Stage 2 monitoring. There is a cessation lag associated with bladder cancer cases. A lot of the long term effects are realized because people are exposed to less of the contaminant in later years. One of the subgroup's recommendations to NDWAC is that the measure extend beyond 2014 to take future benefits into account. Most of the changes required in the Stage 2 Rule will be made in 2014, but these changes will continue to result in bladder cancer reductions past 2014 because of the cessation lag and delays in compliance.

For the LT2 measure, the subgroup proposes to use the EA risk assessment methods to relate *Crypto* occurrence and the tools used or treatment changes implemented to reduced annual endemic cases of Cryptosporidiosis. In 2008, EPA will make an estimate of the endemic cases avoided in 2014 based upon source water data used in the LT2 EA and available source water monitoring data from large surface water systems. The final performance measure will be made in 2014 using source water monitoring data; EPA expects that this data will be available for most systems in 2014. The occurrence of *Crypto* in source water varies widely from year to year. To account for this variability, EPA will use the historical occurrence data sets used in the EA as well as the new source water monitoring data.

In the final measure, EPA will also acknowledge and discuss the other activities of water systems and drinking water programs that are contributing to the reduction in microbial contamination in finished water. These activities could include bringing higher quality water sources on-line, improving wastewater treatment to remove or inactivate *Crypto*, and implementing other source water protection measures.

**Mr. Taylor** explained the history of the performance measure subgroup to give context to the subgroup's recommendations. NDWAC created the performance measure subgroup in summer 2005 after the promulgation of the Stage 2 and LT2 rules. OMB wanted to know how EPA would gauge the performance of these regulations relative to public health specific to drinking water. The subgroup decided to select one constituent from each of the following groups: organic contaminants, inorganic contaminants, and microbials. Ideal constituents have

available water quality and public health data that can be related to the implementation of an EPA regulation. After a series of discussions, the subgroup selected TTHMs and *Crypto*. Mr. Taylor noted the challenges associated with the effort – to gain the cooperation of entities that collect the data so that EPA can use it and to deal with uncertainty (e.g., percent of bladder cancer cases attributable to THM, effect of cessation lag).

**Ms. Beardsley** added that the primary purpose of the performance measures is to translate the work of EPA, state drinking water programs, and utilities into quantifiable public health benefits. The proposed performance measures utilize existing EPA methods and data. Both measures follow the same process: (1) establish a baseline (the quality of water before rule implementation); (2) estimate the number of cases avoided; and (3) compare the estimate to monitoring data available in 2014.

**Mr. Young** noted that establishing a baseline reflecting conditions prior to the rules makes sense. He asked if the OMB will assess EPA’s incremental progress or the amount of progress achieved since the rules’ inception.

**Ms. Dougherty** responded that OMB is interested in the effectiveness of recent regulations but the language should specify that the performance measure only evaluates the effectiveness of a part of the program, not the entire program.

**Mr. Diemer** observed that by definition, the target value will fall within a very wide range. Even if this range will satisfy OMB, will it be useful for EPA’s purposes. Does EPA put itself at risk by predicting a certain number with such a large range of uncertainty?

**Mr. Grunenfelder** applauded the work of the subgroup. In the absence of real health outcome data, using the approach based on indications used when the rule was promulgated is the best option available.

**Mr. Radke** commented that the CDC faces similar challenges when dealing with endemic instances of disease. It is difficult to use endemic cases as a baseline because it assumes that the surveillance system will remain constant.

**Dr. Head** asked if there is flexibility in NDWAC’s recommendations that would allow EPA to adjust the methods in the presence of new data. NDWAC should recommend EPA increase efforts to collect real health data in cooperation with CDC.

**Ms. Guilaran** replied that the method presented is a model approach. EPA continues to collect occurrence data from states and to work the CDC on the reporting of endemic and waterborne disease outbreaks.

**Mr. Taylor** noted that the uncertainties and data gaps associated with the proposed methods can be used as a driver for public health agencies to fund programs to provide the data EPA needs to re-establish the link between drinking water and public health.

**Mr. Baker** emphasized the importance of the descriptions of uncertainty in the proposed measure, specifically those related to the cessation time lag. The subgroup is concerned that EPA will understate improvements if they only report the achievements as of 2014. NDWAC recommends that EPA include the future health benefits achieved as a result of infrastructure that is already in place in 2014. In addition, the NDWAC recommendation to EPA should include the need for the Agency to continue to work with utility organizations (NDWAC, ASDWA, AWWA, etc.) to finalize and implement the proposed methodology.

Speaking on behalf of the performance measures subgroup, **Ms. Beardsley** motioned that NDWAC make the following recommendations to EPA:

*NDWAC unanimously approved the following recommendation:*

**NDWAC Recommendations for Drinking Water Performance Measures  
Fall 2007**

*In support of EPA's efforts to create health-outcome-based performance measures of the national drinking water program, the National Drinking Water Advisory Council (NDWAC) recommends the following:*

After considering a number of possible approaches, contaminants, and data issues, NDWAC recommends performance measures focused on risk reduction relating to recently promulgated rules. Accordingly, NDWAC strongly recommends that EPA incorporate prototype strategic targets in its 2009-2014 Strategic Plan for two contaminant categories:

1. Chemical Contaminants—Total Trihalomethanes (TTHMs)
2. Microbials—*Cryptosporidium* (*Crypto*)

In doing so, EPA should continue to work with others, including NDWAC, in developing and implementing the methodologies described below.

Framework for Model-Based Approach for the TTHM Measure

**Health-Based Measure:** *Avoided bladder cancer cases attributable to the national reduction of average concentration of TTHMs observed resulting from the implementation of the Stage 1 and Stage 2 Disinfectant and Disinfection Byproduct (DBP) Rules.*

NDWAC recommends EPA use the analytical concepts and computational methods from the Stage 2 DBP Rule Economic Analysis (Stage 2 EA) to estimate the annual reduction in the number of bladder cancers attributable to TTHMs resulting from implementation of the Stage 1 and Stage 2 DBP Rules. The analytical concepts to be used include the bladder cancer risk attributable to drinking water, a population weighted national TTHM average, the relationship between TTHM reduction and bladder cancer incidents attributable to drinking

water, and cessation lag (the time delay between reduction in exposure and realization of the predicted health benefits).

There are three basic steps to this health based measure. First, EPA should use the Stage 2 EA to establish a pre-Stage 1 baseline estimate of the number of bladder cancer cases attributable to drinking water. EPA will then estimate a target number of annual cancer cases to be avoided due to implementation of the Stage 1 and Stage 2 rules. Finally, in 2014 EPA will evaluate if implementation of the rules is achieving this estimate.

Implementation of this measure methodology will require EPA to work with state Drinking Water Programs to collect Stage 1 and Stage 2 DBP Rule compliance monitoring data. NDWAC recommends EPA model their information collection efforts after the methodology used for the six year review ICR conducted in 2007.

In estimating a target reduction for 2014, EPA should take into account and, to the extent possible given available data, adjust for changes in sampling frequency and location from Stage 1 to Stage 2.

In accounting for cessation lag, NDWAC recommends EPA utilizes a twenty year time horizon to estimate the total annual health benefits recognized by reductions in the national average TTHM concentrations achieved by 2014.

#### Framework for Model-Based Approach for the *Cryptosporidium* Measure

**Health-Based Measure:** *Annual cases avoided nationally of endemic Cryptosporidiosis illnesses during attributable to implementation of the Long Term 2 Enhanced Surface Water Treatment Rule.*

NDWAC recommends EPA use the concepts and computational methods from the Long Term 2 Surface Water Treatment Rule Economic Analysis (LT2 EA) to estimate the number of annual endemic cases of cryptosporidiosis avoided as a result of implementation of the LT2 Rule. The concepts include estimating source water *Cryptosporidium* occurrence, changes in treatment resulting from LT2 rule provisions, and estimating disease reduction associated with the reduction in exposure to *Cryptosporidium*.

There are three basic steps for health based measure. First EPA will estimate pre-LT2 cryptosporidium cases from exposures using the concepts from the LT 2 EA. EPA will then estimate a target number of cases avoided based on available monitoring and LT2 EA data. Finally, in 2014, using additional monitoring data and the LT2 EA analysis, EPA will evaluate how well the rules are achieving this estimate. EPA would estimate the cases of *Cryptosporidiosis* avoided by taking the pre- and post-LT2 rule *Crypto* occurrence levels and the LT2 EA dose-response relationship to calculate the *Cryptosporidiosis* cases under each scenario.

NDWAC recommends EPA make adjustments to the EA assumptions to account for the additional source water monitoring data and the actual binning outcomes resulting from those data that will be available in 2014 but not in 2008. Due to large range of values resulting from the source water occurrence data, NDWAC recommends EPA the cases avoided be presented as both a percentage and a range with accompanying explanation.

Finally, in addition to the quantitative analysis focusing on LT2 treatment requirements, NDWAC recommends that EPA acknowledge and discuss the other activities of water systems and drinking water programs that are contributing to the reduction in microbial contamination in finished water. These activities could include bringing higher quality water sources on-line, improving wastewater treatment to remove or inactivate *Crypto*, and implementing other source water protection measures.

#### Data Collection

In light of EPA’s recent success in building trust and cooperation with states in regards to data collection, NDWAC recommends that EPA continue to work with states to institute an ongoing data-sharing process to support current and future drinking water rules and any related performance measures. EPA’s should minimize additional burdens on water systems and states associated with implementing these performance measures.

**Dr. Head** seconded the motion.

**Vote on motion – 12 Yea, 0 nay, 0 absent. Motion carries.**

### **UPDATE ON REGULATORY MATTERS**

*Pam Barr (SRMD)*

**Pam Barr** provided an update of EPA’s regulatory initiatives. EPA commissioned a FACA to give the Agency recommendations on how to revise the TCR and recommendations on information that should be collected or research conducted to identify water quality issues in the distribution system. The goal is to have an agreement in principle by the summer or fall of 2008.

The CCL is a list of contaminants that EPA will potentially consider for regulation. EPA continues to follow the process recommended by NDWAC to generate this list. The draft of the third Candidate Contaminant List (CCL3) should be published in February 2008. EPA is also working on the second set of regulatory determinations. EPA must decide whether to regulate at least five of the contaminants on CCL2. Last May, EPA released a preliminary determination to not regulate 11 out of 51 contaminants on CCL2. EPA is unable to make a regulatory determination for methyl tert-butyl ether (MTBE) until the risk analysis is complete. EPA is also unable to make a regulatory determination for perchlorate until the

Food and Drug Administration (FDA) publishes a total diet study that will inform the relative exposure for food relative to drinking water.

The SDWA also requires EPA to review existing regulations every six years to determine if revisions are necessary. EPA is in the process of the second six year review, which includes the arsenic rule and Stage 1 DBP rule.

### **FAREWELL TO MEMBERS**

The agenda paused to allow **Ms. Dougherty** to recognize those Council members whose terms expired after the November meeting. Ms. Dougherty thanked the members for their service and reiterated the importance of the Council's work in advising the drinking water program and EPA. Members leaving the Council after a second term were Brian Ramaley (Chair), Mike Baker, Bruce Florquist, John Young, and Blanca Surgeon. Greg Grunenfelder has completed his first term. Members received a plaque recognizing their service and a thank you letter from Benjamin Grumbles, Assistant Administrator for Water.

### **UPDATE ON CO<sub>2</sub> SEQUESTRATION**

*Steve Heare (DWPD), Ann Codrington (DWPD)*

**Steve Heare** described EPA's efforts related to the geologic sequestration (GS) of carbon dioxide (CO<sub>2</sub>). One way to prevent the release of CO<sub>2</sub> into the atmosphere is to sequester it into a formation deep underground. The Safe Drinking Water Act (SDWA) requires EPA to develop minimum federal regulations for state and tribal UIC Programs to protect underground sources of drinking water (USDWs). The UIC Program regulates underground injection of all fluids (liquid, gas, or slurry) and provides a framework for CO<sub>2</sub> GS.

**Ann Codrington** stated that the Office of Air and Radiation (OAR) plans to release a rule this summer that mentions CO<sub>2</sub> GS as an option for alternative fuel plants. In October, Steve Johnson announced that EPA would develop a Proposed Rule for commercial scale geologic sequestration of CO<sub>2</sub> by summer 2008. States and regions need guidance from EPA to set appropriate permit conditions for GS to protect USDWs and public health. The proposed rule will address requirements in the existing UIC framework, but will approach them with the special qualities of CO<sub>2</sub> GS in mind.

The proposed rule will address the following technical elements: geologic siting criteria, area of review, well construction standards, mechanical integrity testing, operation and monitoring requirements, well closure, and post-closure care and monitoring. EPA is working to answer the following key questions:

- What are the effects of CO<sub>2</sub> injection on USDWs?
- Will storage of significant volumes of CO<sub>2</sub> cause large-scale displacement of native fluids?
- Will CO<sub>2</sub> dissolve contaminants in groundwater?

- How should the rule address the potential for large scale releases of CO<sub>2</sub> from abandoned wells?
- How do site-specific geology and other local conditions affect risk?

**Mr. Heare** added that EPA published UIC Class V Experimental Technology Well Guidance in March 2007. EPA also commissioned several workgroups to focus on technical aspects of CO<sub>2</sub> GS such as construction of a CO<sub>2</sub> well, mechanical integrity of the well, monitoring methods, area of review, and long term liability. In collaboration with OAR and the Department of Energy (DOE), EPA also funded research to examine organic leaching, dissolution of metals, co-injection (what if emissions are not pure CO<sub>2</sub>), and storage capacity. EPA is also funding a risk analysis to determine how CO<sub>2</sub> GS will affect drinking water and public health.

**Ms. Thorp** stated that among environmental groups, the role of technology in addressing the problem of greenhouse gas is frequently a topic of discussion. In the past, the purpose of CO<sub>2</sub> GS was to eliminate the last amount of carbon from coal plants. But now it seems that it is a much larger endeavor.

**Mr. Young** expressed concern that the EPA will not be able to regulate the quality of injectate. Most emissions from power plants are not pure CO<sub>2</sub>. Mr. Young asked if EPA is regulating the quality of gas injected underground in the pilot studies.

**Mr. Heare** responded that quality will need to be addressed in the final regulation. The cost of CO<sub>2</sub> removal technology will be driven by how clean EPA will require the CO<sub>2</sub> to be.

**Mr. Diemer** commented that the proposed schedule is very aggressive given the potential consequences and uncertainties associated with CO<sub>2</sub> GS. There are too many unanswered questions. Approximately 44 percent of the drinking water in the United States comes from ground water sources. How will CO<sub>2</sub> GS affect these sources? What are the potential impacts of concentrated CO<sub>2</sub> being accidentally released into the atmosphere? Will CO<sub>2</sub> alter the pH of the ground water? Will the displacement of native fluids cause hazardous substances to leach into USDWs?

**Mr. Heare** emphasized that the summer 2008 deadline is for a proposed rule, not a final regulation. EPA hopes that the proposed rule will generate meaningful discussion of CO<sub>2</sub> GS. Some states need to learn EPA's perspective on this issue in order to develop their own regulations. It is important for state agencies and EPA to move in the same direction.

**Ms. Dougherty** added that a power plant could apply for a CO<sub>2</sub> GS permit under the UIC regulations today and begin injection. It is important for EPA to promulgate regulations that are specific to CO<sub>2</sub> GS in the near future.

**Mr. Baker** agreed that EPA needs to move forward with a regulatory determination soon. In Ohio, at least two or three facilities are looking to request CO<sub>2</sub> injection permits soon.

**Mr. Florquist** stated that it is difficult to determine what will be displaced when CO<sub>2</sub> is injected underground. Also, as the temperature underground increases CO<sub>2</sub> will expand; this will create a myriad of problems.

**Mr. Taylor** asked how the UIC program defines ground water. Will the proposed GS rule protect brackish water as well as fresh water?

**Ms. Dougherty** replied that the UIC standard protects all USDWs (< 10,000 TDS), this includes brackish water and saline aquifers.

**Dr. Head** asked to what extend OGWDW plans to coordinate with OAR and DOE as it moves forward with the new regulations.

**Ms. Codrington** responded that OGWDW maintains an open line of communication with OAR and DOE.

**Mr. Heare** added that members from state oil and gas agencies and from the Groundwater Protection Council will participate in the workgroup.

**Mr. Young** motioned that NDWAC make the following recommendation to EPA. NDWAC recognizes the potential environmental benefits of geo-sequestration of CO<sub>2</sub>. However, given the number of unresolved technical and policy issues associated with the geo-sequestration of CO<sub>2</sub>, including potential adverse public health and environmental effects and unintended consequences to ground water resources, NDWAC recommends that USEPA assures that timely and sufficient resources are allocated to the research and debate associated with geo-sequestration. Additionally, USEPA should assure that existing laws are adequate for the short and long term protection of the nation's water resources from geo-sequestration activities.

**Mr. Diemer** seconded the motion.

**Vote on motion – 12 Yea, 0 nay, 0 absent. Motion carries.**

## CONTINUATION OF COMMUNICATION DISCUSSION

**Ms. Blette** presented a summary of actions recommended in yesterday's meeting. They are as follows:

- NDWAC recommends that EPA reevaluate the Consumer Confidence Rule requirements to see if they are meeting the goals of the 1996 law. The Council noted that such a review could be conducted as a part of the next 6 year review of national primary drinking water regulations or through other appropriate means.

- NDWAC recommends that EPA develop and/or identify models that states and public water systems can use to effectively communicate on priority issues. The Council suggested that EPA could compile good examples and share them broadly and/or develop templates/models that can be modified for use at the local level.
- NDWAC recommends that EPA identify models of effective collaboration on communication issues between utilities, state drinking water programs, and local/state health departments. The Council noted that EPA could follow up with organizations like ASTHO, NACCHO, and AWWA on their efforts to strengthen the connection between public health and safe drinking water.
- NDWAC recommends that EPA work to identify organizations or elected officials with whom it could collaborate to communicate with policy makers on critical drinking water issues (e.g. sustainable infrastructure, investment, rates, water quality).
- NDWAC recommends that EPA ensure that the messages and other products addressing key drinking water issues are disseminated widely. Several Council members agreed to review EPA's new consumer web site, but also asked if EPA could consider how other sections of its site could be modified to facilitate flow of information to specific audiences.

**Mr. Diemer** motioned to adopt these recommendations in principle. Ms. Blette will circulate a formal statement via e-mail for the Council's approval. {Note: the language above reflects the language subsequently approved by Council members.}

**Dr. Head** seconded the motion.

**Vote on motion - 12 Yea, 0 nay, 0 absent. Motion carries.**

### **ISSUES FOR DISCUSSION AT SPRING 2008 MEETING**

**Mr. Grunenfelder** suggested the following possible discussion topics for the spring 2008 NDWAC meeting: geologic sequestration, asset management, sustainable infrastructure, full cost pricing for small systems, and water efficiency.

**Mr. Taylor** proposed the impact of global climate change on water resources as a possible agenda item.

**Mr. Wheeler** suggested that the group discuss total water management.

### **WRAP UP**

*Gregg Grunenfelder*

**Mr. Grunenfelder** thanked the Council for their participation and discussion.

Meeting adjourned.

## Appendix A

### National Drinking Water Advisory Council Fall Meeting Sheraton Four Points Hotel, Washington, DC FINAL AGENDA

November 15-16, 2007

Thursday, November 15, 2007 – Theme of the Day is Communication!

|                  |   |  |
|------------------|---|--|
| 8:30-8:45 am     | Welcome   | Greg Grunenfelder, Acting NDWAC Chair, Veronica Blette, DFO                            |
| 8:45 – 9:15 am   | <p>Communication - Overview</p> <p><i>Purpose: Communication is a universal job requirement for the drinking water community. We find that communication needs are changing because the public wants and expects more communication. In trying to meet that need, we can be challenged in how we communicate about issues where there is still uncertainty. Ms. Dougherty will provide a brief overview of national public right-to-know requirements</i></p>   | Greg Grunenfelder, Acting NDWAC Chair and Cynthia Dougherty, OGWDW Office Director     |
| 9:15-10:15 am    | <p>EPA Communication Efforts</p> <ul style="list-style-type: none"> <li>● EPA Public Website/Outreach</li> <li>● Risk Communication</li> <li>● CCRs &amp; Gallup Survey</li> </ul> <p><i>Purpose: Provide the Council with a brief overview of activities that EPA has been carrying out in this area.</i></p>  | Charles Job, DWPD<br>Rose Kyprianou, SRMD<br>Brian Pickard, WSD<br>Veronica Blette, IO |
| 10:15 – 10:30 am | <b>BREAK</b>  |  |
| 10:30-12:00 pm   | <p>Communicating Effectively on a Daily Basis</p> <p><i>Purpose: Panelists are asked to address a variety of questions on the issue – drawing on their personal experience and opinions. Questions that may be addressed, include, but are not limited to: What are the communication goals of various stakeholders? Do they sometimes conflict with one another? How do we tailor messages to reach specific audiences? How much information is too much? How do we simplify technical issues for the general public? How do we communicate about issues where there is uncertainty about risks? How can/should the drinking water community carry out a baseline communication program? How are CCRs and Public Notification requirements being implemented? Are they meeting the needs of customers? Of utilities? What kind of partners can help in the effort? How can all work to build support for investment in drinking water that will be needed in the future?</i></p> |  |

|                |  |   |
|----------------|--|---|
| 10:30-11:15 am | Utility Panel  | John Young, Jeff Taylor, Brian Wheeler, Dennis Diemer                     |
| 11:15-12:00 pm | Public and Stakeholders  | Blanca Surgeon, Bruce Florquist, Doug Owen, Lynn Thorp, Jennifer Nuzzo    |
| 12:00-1:30 pm  | <b>LUNCH</b>   |   |
| 1:30 – 3:00 pm | <b>Communicating during Crises</b><br><i>Purpose: Panelists are asked to address a variety of questions on the issue – drawing on their personal experience and opinions. Questions that may be addressed, include, but are not limited to: How do we communicate about issues where there is uncertainty about risks? How do we ensure that we are prepared to communicate during an emergency? What lessons can we learn by those who have had to communicate during a crisis? What information has EPA developed to support crisis communication?</i> |   |
| 1:30-2:15 pm   | Utility Panel  | John Young, Jeff Taylor, Brian Wheeler, Dennis Diemer                     |
| 2:15-3:00 pm   | Government Officials   | Nancy Beardsley, Greg Grunenfelder, Mike Baker, Rebecca Head, Vince Radke |
| 3:00-3:15 pm   | <b>BREAK</b>   |   |
| 3:15-4:15 pm   | <b>PUBLIC PARTICIPATION</b>  |   |
| 4:15-5:45 pm   | <b>Group Discussion on Potential EPA Efforts to Enhance Communication</b><br><i>Purpose: Discussion by the Council. The Council may or may not choose to make formal recommendations to the Agency</i>   | Council   |
| 6:45 pm        | <b>GROUP DINNER</b>  |   |

**Friday, November 16, 2007**

|                 |   |   |
|-----------------|---|---|
| 8:00 - 8:45 am  | Update on Small Systems Subgroup<br><i>Purpose: Discuss workgroup efforts.</i>                  | Blanca Surgeon, NDWAC<br>Jenny Bielanski, DWPD  |
| 8:45 – 10:00 am | Update on Performance Measures Subgroup<br><i>Purpose: Discuss workgroup efforts.</i>           | NDWAC Subgroup member<br>Yu-ting Guilaran, SRMD |
| 10:00-10:30 am  | Update on Regulatory Matters<br><i>Purpose: Update on CCL3, Six Year Review, and TCRDS FACA</i> | Pam Barr, SRMD                                  |

|                |  |                                      |
|----------------|--|--------------------------------------|
| 10:30-11:30 am | Update on CO2 Sequestration                  | Steve Heare and Ann Codrington, DWPD |
| 11:30-11:45 am | Issues for Discussion at Spring 2008 Meeting | All (Council and EPA)                |
| 11:45-12:00 pm | Wrap Up                                      | Greg Grunenfelder, Acting Chair      |
| <b>ADJOURN</b> |  |                                      |