National Drinking Water Advisory Council

Meeting Notes

December 14 – 15, 2011

Hyatt Regency Crystal City Hotel
2799 Jefferson Davis Highway
Arlington, VA 22202

Prepared for:
United States Environmental Protection Agency
Office of Water (OW)
Office of Ground Water and Drinking Water (OGWDW)
1201 Constitution Avenue, NW
Washington, D.C. 20004

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Appendices

Attendees

National Drinking Water Advisory Council (NDWAC)

Olga Morales, NDWAC Chair, Rural Development Specialist-Environmental, Rural Community Assistance Partnership (RCAP), Dona Ana, New Mexico
Jessica Godreau, Chief, Public Water Supply Section, North Carolina Department of Environment, Raleigh, North Carolina
Maria Kennedy, Executive Director, Quail Valley Environmental Coalition, Rancho Cucamonga, California
Sonja Massey, Chief, Groundwater Branch, Alabama Department of Environmental Management, Montgomery, Alabama
Douglas Owen, Vice President and Chief Technology Officer, ARCADIS/Malcolm Pirnie, Inc., White Plains, New York
David Saddler, Manager, Water/Wastewater and Propane Dept., Tohono O'odham Utility Authority, Sells, Arizona
Lisa Sparrow, President, Utilities, Inc., Northbrook, Illinois
Marcia St. Martin, Executive Director, Sewerage and Water Board of New Orleans, New Orleans, Louisiana
Hope Taylor, Executive Director, Clean Water for North Carolina, Durham, North Carolina
June Weintraub, Senior Epidemiologist, San Francisco Department of Public Health, San Francisco, California
Craig Woolard, General Manager, Anchorage Water and Wastewater Utility, Anchorage, Alaska

Centers for Disease Control and Prevention (CDC) Liaison

Dr. Max Zarate-Bermudez, Division of Emergency and Environmental Health Services, National Center for Environmental Health (NCEH), CDC, Atlanta, Georgia

U.S. Environmental Protection Agency (EPA) Attendees

Nancy Stoner, Acting Assistant Administrator, Office of Water (OW)
Cynthia Dougherty, Director, Office of Groundwater and Drinking Water (OGWDW)
Ron Bergman, Acting Deputy Director, OGWDW
Pam Barr, Director, Standards and Risk Management Division (SRMD), OGWDW
Curt Baranowski, OW/OGWDW, Water Security Division (WSD)
Debbie Newberry, OW/OGWDW WSD
Adrian Hanley, OW/OGWDW WSD
Richard Weisman, OW/OGWDW WSD
Jennifer Orme-Zavaleta, Office of Research and Development (ORD)
Mindy Eisenberg, Drinking Water Protection Division (DWPD)
Ann Codrington, OW/OGWDW/DWPD
John Dombrowski, Office of Enforcement and Compliance Assurance (OECA)
Melissa Saddler, OECA
John Noel, OW/OGWDW/DWPD
Sean Conley, OW/OGWDW/SRMD

Sylvia Malm, OW/OGWDW/DWPD
Jacquelyn Springer, OW/OGWDW/IO/RMES
Victoria Binetti, Region 3

Designated Federal Officer (DFO)
Suzanne Kelly, OW/OGWDW

Members of the Public
John Barrett, Government Accountability Office (GAO)
Scott Biernat, Association of Metropolitan Water Agencies (AMWA)
Erica Brown, Noblis
Adam Carpenter, American Water Works Association (AWWA)
Kristen Delea, CDC
Bridget DiCosmo, Inside Washington Publishers (IWP)
David LaRoss, IWP
Barbara Losey, Inter-Industry Network on Microconstituents
Bridget O'Grady, Association of State Drinking Water Administrators (ASDWA)
Darrell Osterhoudt, ASDWA
Mary Ostrowski, American Chemistry Council
Alan Roberson, AWWA
Chi Ho Sham, The Cadmus Group
Jessica Steinhilber, Fluoro Council
Robert Stewart, RCAP
Jim Taft, ASDWA
Steve Via, AWWA

Meeting Summary: Wednesday, December 14, 2011

WELCOME

Suzanne Kelly, DFO, and **Olga Morales**, Chair, opened the meeting. Ms. Morales thanked those attending the meeting for their participation during this busy time of year, and also noted her appreciation for those who participated on the Council's conference call last month. Four Council members, **Dennis Diemer**, **Elston Johnson, Robert Vincent**, and **Jennie Ward-Robinson** were not in attendance.

NATIONAL DRINKING WATER PROGRAM UPDATE
Cynthia Dougherty, Director, OGWDW

Ms. Cynthia Dougherty, Director, OGWDW, provided an introduction to the agenda, an overview of some of the National Drinking Water Program priorities for the year ahead, and also noted some position changes within the Agency. Although she had planned to provide an update on the fiscal year (FY) 2012 appropriations, she stated that unfortunately the budget had not yet been approved. EPA has been under a continuing resolution for the FY 2012 budget that started on October 1, 2011 and was expected to end on Friday, December 16, 2011. Ms. Dougherty stated that she would be able to provide an update on both the FY 2012 budget as well as the FY 2013 budget proposal at the next NDWAC meeting.

Ms. Dougherty indicated that Ms. Ann Codrington, who had been the Acting Director of the DWPD, is now the Director of the DWPD. Mr. Ron Bergman, who is currently the Acting Deputy Office Director for OGWDW, will return to his former position within the DWPD next week. Mr. Andrew Sawyers, formerly the Deputy Director of the Maryland Water Quality Financing Administration, will be joining EPA as OGWDW's Deputy Director. She commented that Mr. Sawyers will be a good addition to the Agency, and his experience from the State level will be beneficial to EPA.

Ms. Dougherty introduced a number of topics that the Council would be discussing at the meeting and also highlighted some that were not on the agenda, such as the Drinking Water State Revolving Fund, which was discussed at the last meeting.

Ms. Dougherty introduced some of EPA's priorities, to be discussed later in the NDWAC meeting. EPA's OW Acting Assistant Administrator, Nancy Stoner, would be presenting the OW's priorities on Day 2. This will serve somewhat as a culmination of the presentations leading up to that discussion.

Ms. Dougherty indicated that there would be a full agenda and a number of topics that would be discussed. Ms. Dougherty invited the Council to provide specific recommendations during the discussion, but also noted that at the end of the meeting, after Nancy Stoner's presentation, there would be an opportunity for providing finalized recommendations as a Council. Lastly, Ms. Dougherty announced that Ken Kopocis has been nominated by the President to be the Assistant Administrator for the Office of

Water. Mr. Kopocis has most recently been the Senior Counsel on the House Committee on Transportation and Infrastructure. He is now on staff at EPA as a Senior Advisor to the Assistant Administrator for Water but is not currently in a decision-making role. Nancy Stoner remains the decision-maker at this point. She further stated that Ephraim King, Director of the Office of Science and Technology (OST) within the OW, is retiring at end of the month. Ms. Dougherty then opened the discussion to questions; although there were none at this time.

WATER SECURITY ACTIVITIES: INTRODUCTION

Debbie Newberry, WSD

Ms. Newberry indicated that Mr. Baranowski, Mr. Weisman, and Mr. Hanley would be providing presentations on Climate Ready Water Utilities activities, lessons-learned from Hurricane Irene and Tropical Storm Lee, and the EPA Region 7 and 8 full scale exercises (respectively). She stated that there has been a lot of coordination with the Department of Homeland Security (DHS) and other work groups.

WATER SECURITY ACTIVITIES: CLIMATE READY WATER UTILITIES

Curt Baranowski, WSD

Mr. Baranowski provided an update on the Climate Ready Water Utilities (CRWU) activities. He indicated that often people wonder whether the WSD is the right place for climate-related activities within the OW, but he believes it is a natural fit. The WSD is not only looking at terrorism, but at all hazards, including natural disasters. He then went on to explain some of the initiatives of the WSD, who the Division is working with, and how they are pursuing the 12 recommendations from the NDWAC on the CRWU Report last year.

With regard to the tools being developed, such as the Climate Resilience Evaluation and Awareness Tool (CREAT), the WSD has been talking regularly with associations and climate committees and asking whether these are the types of tools that utilities need. The WSD has been gaining the external Federal perspective from the National Oceanic and Atmospheric Administration (NOAA), the US Army Corps of Engineers (US ACE), the Council on Environmental Quality (CEQ), and others. Within EPA, input has been sought from many different Offices such as the Office of Wastewater Management (OWM), Office of Wetlands, Oceans, and Watersheds (OWOW), Office of Policy (OP), Office of Air and Radiation (OAR), as well as the Regions and others. In particular, within the Office of Water, they have been working closely with Karen Metchis on EPA's National Water Program Climate Strategy.

Discussion within presentation:

Ms. Dougherty emphasized that the WSD and the OW as a whole are trying to provide tools to address climate considerations that can be used and adapted into what already exists at the state, federal and local level, as opposed to a separate program.

Mr. Baranowski indicated that Mr. Steve Albee of EPA's OWM has also been an effective partner in addressing how the work the WSD is doing and how CREAT can be adapted to the activities being done within their Office. He further suggested that he would be interested to hear how the WSD efforts could fit into what the NDWAC was doing.

Mr. Zarate-Bermudez indicated that there is a group within the CDC that is working with AWWA on these issues, and particularly developing templates related to climate change adaptation strategies for water utilities. He can provide contact information for anyone interested.

Mr. Baranowski stated that he was aware of this and had attended a meeting regarding this group in August or September.

Ms. Weintraub asked whether the group working on climate change within the WSD was also working on other activities or if it was group dedicated solely to climate issues.

Mr. Baranowski answered that it is not a distinct group and that they are assigned other activities as well. The group has been working with partners to build the tools, which has been helpful. To date, the WSD has not had the authority for a dedicated program.

Presentation continued:

Mr. Baranowski continued the presentation with an introduction to the Adaptive Response Framework (ARF), a concept of the CRWU. He suggested that they would like to reconstruct the website around the ARF goals and provide information and assistance so that utilities can recognize where they are on the continuum and where they need to be. This addresses NDWAC CRWU Recommendation 2.

Mr. Baranowski announced that version 1.0 of CREAT is available for download by any utility. The WSD is also currently working on the second version, for which some of the NDWAC members are helping. Version 2.0 will focus a lot more on extreme weather events and energy management. He invited the NDWAC to email him if interested, and/or to provide feedback. The WSD's Adaptation Strategies Guide is an interactive Adobe® Portable Document File (PDF) document that assists in the adaptation planning process. CREAT and the Adaptation Strategies Guide address NDWAC CRWU Recommendations 4 and 7.

Mr. Baranowski also relayed to the NDWAC the benefits of the WSD's partnership with Climate Ready Estuaries. This work addresses NDWAC CRWU Recommendations 5, 6, and 12.

Mr. Baranowski discussed the WSD's new tabletop exercise tool for extreme weather workshops, which addresses NDWAC CRWU Recommendations 5 and 6.

Discussion within presentation:

Mr. Owen asked whether this tool was unique and distinct from CREAT.

Mr. Baranowski replied that it was, and that CREAT is a risk assessment tool used to forecast into future, whereas the tabletop exercise tool is used to identify immediate adaptation strategies.

Presentation continued:

Mr. Baranowski concluded the presentation with a summary of the CRWU Toolbox, which is a searchable database for the water sector.

Discussion after presentation:

Ms. Godreau said she attended a CREAT webcast, and the asset inventory was identified as one of the fundamental components. She suggested that there are other tools, which also require an asset inventory such as a utility's vulnerability assessment, and asked whether there was potential for integration among them; building an asset inventory can be a large undertaking, and it would be helpful if there were some cross-over opportunities.

Mr. Baranowski agreed that this was a common concern heard during the webcasts. He said that they are trying to incorporate the ability for the CREAT database to integrate with other databases, such as the Vulnerability Self Assessment Tool (VSAT) and the Check Up Program for Small Systems (CUPSS). He said they are looking to see what other tools are out there and how they can integrate with their databases, and this is one of the improvements they are hoping to incorporate into version 2.0. They currently have a list of about ten asset management tools for which they are looking to integrate.

Ms. Morales asked whether Mr. Baranowski had received any other resonating feedback that could help with version 2.0.

Mr. Baranowski responded that there were a few different themes, one of which was the asset inventory issue. Uncertainty around climate change and how data are presented were also themes. Utilities were polled as part of the evaluation of CREAT, and the data from this are being analyzed now. He said that he would be happy to share these results once the themes have been identified.

Ms. Morales stated that she attended a work session in June 2011, and that she was the attendee that represented small systems. She emphasized that small systems do not have the resources to address climate change as they are having a hard time addressing day-to-day issues. She suggested that one idea would be to have version 2.0 of CREAT available at a regional scale, which would support broader concepts of consolidation, partnership, and regionalization. In addition, one of the recommendations from the report

was to look at the watershed scale. She asked whether this is being considered, and acknowledged that she was aware budgetary issues could be a constraining factor.

Mr. Baranowski stated that he would be talking more about this with Ms. Morales on Friday after the NDWAC meeting, but, based on discussions he has had, one thing they are looking to do is to incorporate small system issues within the tabletop exercise tool. He stated that this tool, which focuses on immediate needs, is where most small systems are today. Through the partnership with the Climate Ready Estuaries program, the WSD is working with small utilities on a regional basis, and a lot will be learned out of that. He resolved that he did not believe CREAT version 2.0 would be a solution for small utilities this year, but this is something that the Agency is working towards. This is a difficult issue, and there is not a perfect solution as of yet.

Ms. Morales recognized the challenges, and said she appreciated WSD's work on this issue.

WATER SECURITY ACTIVITIES: HURRICANE IRENE/TROPICAL STORM LEE – EPA PERSPECTIVES ON WATER SECTOR RESPONSE

Richard Weisman, WSD

Mr. Weisman discussed lessons learned from Hurricane Irene and Tropical Storm Lee. He started with a brief run-down of some of the water sector emergency response incidents in 2011, which is claimed to be one of most severe weather years. Based on these events, it is evident that no part of the country is immune to natural disasters.

Mr. Weisman presented maps of the impacts of Hurricane Irene and Tropical Storm Lee in the Northeast. He indicated that Hurricane Irene was the first hurricane to hit this part of the country in several years, and they were not used to preparing for and responding to the impacts. The types of impacts to the water sector throughout the northeast included flooding facilities, power loss, facility evacuations, boil water orders, the fatality of a Vermont water treatment plant manager, pipeline breaks, and sewerage overflows.

Mr. Weisman touched on information/data collection and transfer during both Hurricane Irene and Tropical Storm Lee. He also expressed the importance of the Water and Wastewater Agency Response Networks (WARNs) during emergencies. The DHS plays a major role in collecting information about substantial emergencies, and they require mandatory national reporting through the National Infrastructure Coordinating Center (NICC).

The OW's main role is to work with Regions, states, and other federal agencies during an emergency response. For example, during Hurricane Irene and Tropical Storm Lee, EPA Region 1 supported the State of Connecticut with 900 phone calls to identify needs.

Mr. Weisman discussed some of the positive highlights, challenges and suggested actions related to the response to the storms. Situational awareness was one positive highlight.

One of the challenges was confusion about the mission assignment process. There was also insufficient awareness about a WARN's capabilities and processes as well as misinformation and miscommunication. Suggested actions include improving the ties between state primacy agencies/permitting authorities, WARNs, Emergency Management Agencies (EMAs), and Federal partners through additional webinars and exercises. Another suggested action was finalizing the Memorandum of Understanding (MOU) with USACE, the Federal Emergency Management Agency (FEMA), and EPA and implementation of this on the regional level.

Discussion after presentation:

Ms. Weintraub thanked Mr. Weisman for the presentation and then asked whether there was insufficient awareness of the WARNs.

Mr. Weisman responded that the message of WARNs has gotten out; however, when an incident happens, everything happens really fast. He said even when utilities have plans where everything is written out, these are often not front and center. He said that it ultimately comes down to who is in the emergency operations center (EOC), and how they can identify where staff and equipment, such as generators, are needed. In any given state, if the WARN was not seated at the EOC, this could become a problem.

Ms. Newberry suggested that one of the challenges was that utilities and other responders didn't realize what the WARN could provide to them. WARNs could have provided a lot more support and resources, but they simply were not asked, because folks didn't know.

Ms. Weintraub asked about the pre-disaster conference calls and whether there were particular protocols, templates, or agendas for these. She explained that under the public health component of their water security grant in San Francisco, she has been working on coordinating a regional conference call, and she wanted to make sure that communications occur among agencies. She clarified that the regional call would only be in the absence of a statewide call.

Mr. Weisman stated that the discussions were focused on expected resource needs and availability. They worked very closely with AWWA and tried to determine the types of resource needs that might come up during the response. They also discussed who would be in the EOC. He said he would check to see if there was an agenda or any other formal protocol for the calls and get back to the Ms. Weintraub with any information.

Ms. Newberry followed that if a formal agenda or protocol did not exist, that this was a great recommendation for a product to be developed.

Mr. Owen referenced power issues during emergencies, and Mr. Weisman's remark that FEMA is one of the agencies that people can reach out to in addition to the power utilities. He asked whether a water utility would have to coordinate with WARN or directly to FEMA and who was at the EOC making those connections.

Mr. Weisman agreed that power outages are one of the main issues during an incident. Generators are a necessary resource, and there are other issues related to them, such as staff being properly trained; having adequate fuel; and installing them properly. He said that the WARN is about utilities helping utilities. It is a program encouraged by the federal government, but it is not a federal program. If a utility needs a generator, then they work through the procedures within their state's WARN operational plan. Utilities should conduct tabletop exercises to test out their operational plans.

Ms. Kennedy asked whether the WARN was also applicable for earthquakes. She stated that in those cases, there is no advanced warning, but there are often severe emergencies that, at least in Southern California, result in water outages.

Mr. Weisman stated that yes, the WARN can be used for any type of emergency whether it is a drought, earthquake, hurricane, etc. He further announced that California happens to be one of the states where the WARN system originated, and that more than 90% of the population is served by a water utility that is part of California's WARN (CalWARN).

Ms. St. Martin asked whether there was any plan to incorporate the business component/financial framework into the MOU. She stated that a lot of utilities lack the business component to complete the paperwork necessary for reimbursement/payment.

Mr. Weisman said that FEMA has the resources to help with this. There is a new tool being developed by EPA to help utilities to be better prepared in this way and to better access financial resources and improve the chance of getting the maximum reimbursement. This will, hopefully, be available soon.

Ms. Morales referenced the data related to the number of systems impacted by the hurricane and stated that it was interesting to see how it was high. She asked what the lessons learned were. She stated that it is now well known that reactive measures are often more expensive than preventative measures. She further asked what can be done to make utilities more resilient.

Ms. Newberry stated that based on experience, it is pretty fair to say that at one time or another, something is going to happen at a given utility. She recommended that utilities join a WARN and connect with other WARN members. She said that there are a lot of tools out there, and utilities should take advantage of these. If the utility waits until the emergency, it makes it more difficult to respond.

Ms. Morales stated that one of the topics discussed during the CRWU workgroup was the opportunity to work together on resiliency. If a utility can't prevent something, it helps to become more resilient.

Ms. Godreau reiterated that power tends to be the biggest issue during an incident. She stated that the hurricane also significantly impacted North Carolina, but the State didn't show up as much, because the utilities were prepared with back-up power and water.

Ms. Sparrow stated that she wanted to echo Jessica's sentiment that power is a major issue. She further indicated that communications is also a significant issue during emergencies. She said that during Hurricane Katrina, many utilities lost communications capabilities, and they had to drive in satellite radios.

WATER SECURITY ACTIVITIES: REGION 7 AND 8 LABORATORY FULL-SCALE EXERCISE

Adrian Hanley, WSD

Mr. Hanley discussed the EPA Region 7 and 8 full scale exercises. He opened by explaining that the Water Laboratory Alliance (WLA), which is comprised of drinking water; public health; environmental and select commercial laboratories, provides the Water Sector with a nationwide network of laboratories.

The exercise took place in October 2011 with the scenarios occurring in Kansas City, Missouri. The participants were mainly personnel from the labs, and the results of the exercise were very positive. The Laboratory Response Network (LRN) led the clinical response and the Food Emergency Response Network (Food and Drug Administration (FDA) and US Department of Agriculture (USDA)) led the food response. The Homeland Security Exercise and Evaluation Program (HSEEP) guidelines were followed. The labs performed very well and acted as if it were a realistic event.

There were three drinking water scenarios, including one with a clinical scenario. The eight-day exercise schedule incorporated a weekend. Thirty-two laboratories participated, including food, clinical, state, utility, and commercial labs. Next year, the WSD hopes to have an exercise for Regions 4, 5, and 6. Mr. Hanley expressed that he felt the WSD did a good job in reaching out to the laboratory community, providing an opportunity to test their emergency response procedures. He suggested that an area for improvement would be to incorporate more utilities in future exercises.

Discussion after presentation:

Ms. Dougherty indicated that some of the feedback from the exercise was that labs are not typically involved in exercises even when laboratory analyses are a part of the exercise. This has implications during an actual event when responders do not realize the issues that can come up related to laboratory analyses until the event happens. She stated that the Region 7 and 8 full scale exercise has been a great experience not just for labs, but for everyone to understand the challenges and issues related to laboratory analyses during an incident. She said that EPA has received very positive feedback.

Mr. Zarate-Bermudez asked what common issues were experienced related to sampling and analysis.

Mr. Hanley reported that lack of communication to and among labs was an issue. It is important for utilities to have comprehensive checklists on what to tell the laboratory. It was revealed that for those that use checklists, the checklists could be improved in terms of basic quality assurance and quality control (QA/QC) and electronic data reporting. For

example, if there are a thousand analyses, how can the resulting data be most efficiently converted into mapping analyses and linked to global positioning system (GPS) software so that managers can make informed decisions? One of the primary issues that is identified in most exercises is electronic data reporting. However, he acknowledged that there has been improvement in this area over time. For example, there was much improvement seen between the Hurricane Katrina response and the Tropical Storm Lee response.

Ms. Weintraub asked whether sampling in the field was conducted as part of the exercise. She noted that they have seen a need to practice sampling while using Hazardous Materials (HazMat) suits.

Mr. Hanley explained that there was some field training incorporated into the exercise, for example, using ultrafiltration devices. Also, Region 7 conducted an exercise using an unknown kit. However, he expressed that this was a lab-focused exercise, and it is hard to incorporate field sampling within an exercise of this length; if there is a field component, the exercise would be better to be held over at least two weeks.

SAFE AND SUSTAINABLE WATER RESOURCES RESEARCH ACTION PLAN

Jennifer Orme-Zavaleta, Office of Research and Development (ORD)

Ms. Orme-Zavaleta provided an update on the Water Research Portfolio Action Plan. Everyone within EPA has the same mission of protecting human health and the environment, and the ORD plays the role of providing data, information, and science to EPA's different offices to fulfill this mission and the Agency's strategic goals. In an attempt to better align the research ORD does to meet the Agency's goals, the Office went through a process to re-align and consolidate the programs. Now there are six programs; four of which are highly integrated; and two of which are targeted (Human Health Risk Assessment and Homeland Security).

Over the course of the re-alignment, there has also been a paradigm shift. The Agency has not abandoned the risk assessment paradigm but has incorporated it into the larger theme of sustainability. The focus is now around the three pillars of sustainability: economy, society and environment, and the interplay among these pillars.

Ms. Orme-Zavaleta suggested that when ORD started down this path, they asked Mike Shapiro to describe the research needs of the OW, the problems OW is expected to face in the upcoming decade, and what information would be needed to address these needs and problems. ORD recognizes that these long-term goals will need to be balanced with OW's near-term needs, but this information will help position the Agency to meet its long-term challenges. The Safe and Sustainable Water Resources (SSWR) Program/Regional priorities include: cost-effective nutrient pollutant reduction strategies; efficient and effective management of known and emerging chemicals of concern; implement regulatory strategies to protect human health from new and emerging pathogens; tools, technology, and approaches for sustainable water infrastructure;

systems approaches to protect watersheds; and addressing the impacts of climate change on water management programs.

The SSWR goals are consistent with the Agency's mission, and seek to maximize benefits while minimizing risk. In taking a sustainable water resources systems approach to the OW research program, ORD has developed two themes: (1) the flow and uses of water resources within the system, and (2) the market systems that feed into this system. Ms. Orme-Zavaleta then went into more detail regarding each of the themes discussing the research questions, example research projects and some challenges related to each.

Discussion within presentation:

Mr. Zarate-Bermudez asked what is considered gray infrastructure.

Ms. Orme-Zavaleta replied that gray infrastructure refers to the storm sewers and other hard infrastructure that is engineered to capture and divert stormwater.

Mr. Owen added that it can be thought of as the pipes and concrete. He indicated that many different institutions and universities, such as the University of New Hampshire (UNH) are studying these issues in detail as well and asked how this work is being incorporated into ORD's efforts.

Ms. Orme-Zavaleta responded that they are coordinating with a few different academic institutions and look forward to working with them in their research.

Presentation continued:

Based on work done in Cleveland related to green infrastructure, Ms. Orme-Zavaleta stated that EPA is creating a "how-to" type of guidance document for other communities that will be available via EPA's website. She indicated that their hope was to have this available by the end of 2012.

Ms. Orme-Zavaleta highlighted aging infrastructure as one of the nation's latest challenges. She suggested that the solution involves tools and metrics that allow comparisons of system options for social, economic, and ecosystem needs. She indicated resource recovery could be used to meet this challenge, and that "waste" water should not be thought of as waste, but as a resource.

Discussion within presentation:

Ms. Kennedy suggested that social issues are a barrier to resource recovery. She said that many property owners maintain large lawns that require significant amounts of water for outdoor watering. Most of this water is from the drinking water supply, and in some places in southern California over 50% of a water system's demand is for outdoor watering.

Ms. Orme-Zavaleta agreed, and further stated that grass can be an invasive species in some cases.

Mr. Zarate-Bermudez referenced a recent graywater reuse workshop that was co-hosted by CDC and EPA Region 4. During the event, a remaining question was related to the minimum number of households that would be needed to make a community black water reuse station cost effective.

Ms. Orme-Zavaleta noted that this was still in the research phase, and there are still some issues that need to be addressed, such as this.

Mr. Zarate-Bermudez asked whether EPA is the right level of government/agency to deal with this issue and its relation to public health protection given the fact that decentralized wastewater management systems are permitted by state health departments.

Ms. Orme-Zavaleta believed that meeting this challenge would require all applicable levels of government and agencies to work together. She stated that EPA's authority is over the water provided by the drinking water industry.

Ms. Weintraub described the work being done in San Francisco on non-potable water re-use. She said that the comfort level for local health departments is improving for these activities, but hard data are needed to move forward. She further indicated that utility rate structure studies would also be useful. In San Francisco, they are seeing a two-pronged benefit to non-potable water reuse: first, the reduction in stormwater and wastewater that needs to be treated at a centralized wastewater treatment facility, and second, re-use of non-potable water for non-drinking water uses to off-set future drinking water demand. She concluded that these ideas would be great to include in ORD's future research activities.

Ms. Orme-Zavaleta suggested that public education is critical for water-reuse, particularly to get past the "yuck factor." She stated that Australia has had some successes that the US can learn from.

Ms. Massey conveyed that she understood the impetus to conserve energy, and that there are novel ways for communities to treat wastewater. However, she cautioned that there are challenges related to onsite decentralized systems. There is huge growth in this sector, and although they are a lot better than septic tanks, there are still problems, and the job is not complete. She asked that continued attention be given to this category, and that operational guidance be provided for small systems for treatment. She also recommended regulatory requirements, such as groundwater monitoring.

Ms. Taylor explained that her organization is interested in both source water protection and onsite systems. She suggested developing creative research permitting requirements for newly developing affordable housing, with enhanced monitoring to assure protection and provide the data that is needed. This could serve as a pilot program for these systems.

Presentation continued:

Ms. Orme-Zavaleta introduced a challenge that has given ORD the opportunity to partner with the Department of Defense, particularly the U.S. Army. This challenge has to do with operating, maintaining, and renewing water treatment infrastructure to ensure that public health, water resource, and aquatic ecosystem protection goals are achieved while optimizing the cost and resource efficiency. Small systems and disadvantaged communities continue to struggle with treatment issues. She noted that they have installed net zero wastewater and energy systems at Army bases to demonstrate some of these technologies and identify whether they have an application for the general public.

Discussion within presentation:

Mr. Woolard suggested that there seemed to be still a strong focus on treatment technologies, which although important, could be avoided by addressing the issue of pollution prevention. He asked how the work ORD is doing could target the elimination of contaminants of concern from the waste stream.

Ms. Orme-Zavaleta explained that much of the program is aimed at addressing that. She said that the first set of projects is looking at nutrient management, and the same thing applies to emerging contaminants of concern. The challenge is looking at the Drinking Water Strategy and addressing contaminants as groups. They are working more with the Office of Pesticide Programs (OPP) to better minimize the introduction of pesticides into source waters.

Mr. Woolard clarified that he was concerned primarily with the manufacturing sector, particularly the pharmaceutical industry. He asked whether EPA has jurisdiction over this sector.

Ms. Orme-Zavaleta suggested that EPA in general is concerned about this topic. Some groups are looking to work with these industries and identify research projects targeting the industries' manufacturing approaches.

Mr. Woolard asked about emerging technologies. He stated that there can be significant barriers to incorporating them permanently into practice. He acknowledged that this was handled at the state level but asked whether addressing this barrier was part of EPA's research plan.

Ms. Orme-Zavaleta stated that ORD is working on this but cannot do it alone. They are working with OW and other offices, and they will need to work together to address this issue.

Ms. Dougherty suggested that one of the things that EPA has done historically for arsenic is that the states have been able to use studies from EPA's research program. EPA is hoping to identify what has worked best and use that in the future. This was a very large program, and doing it again without replicating the cost will be the challenge.

Presentation continued:

Ms. Orme-Zavaleta expressed that the centralized approach for wastewater treatment consumes energy, requires extensive maintenance of extensive but aging piping, yet still impairs ecosystem and human health through discharge/surcharge of nutrients and pathogens and does not recover significant amounts of useable products (e.g., nutrients for agriculture, energy from organics).

Discussion after presentation:

Mr. Owen referenced budgetary issues. He asked if there have been discussions about the general priorities across all components as well as within SSWR.

Ms. Orme-Zavaleta explained that what she presented are the priorities at this time. She further described that the potential reduction in the budget would not equate to a huge shifting of priorities. Although this depends on how the budget will be administered throughout EPA, she didn't expect a huge impact on ORD. She stated that the discussion about priorities has improved in recent years, and that there is more conversation between the OW and ORD. For example, if something is becoming less of a priority for OW, it will not be high priority for ORD and vice versa. Regions are included in these discussions as well.

Ms. Godreau referenced cross-connection control and the importance of that when having a household non-potable re-use system. She suggested explicitly identifying cross-connection devices in plans.

Ms. Orme-Zavaleta stated that she would bring that back to ORD as a recommendation.

Ms. Weintraub asked for clarification on whether epidemiological studies would still be under SSWR.

Ms. Orme-Zavaleta confirmed that they would be. She further stated that the programs are interrelated, and there is a strong effort to ensure collaboration and cooperation. Some of the research studies are common across programs, and a number of them cross many programs, such as: climate change; nitrogen; children's health and environmental justice. This is part of what ORD is striving for: to be trans-disciplinary and engaging to scientists, urban planners, engineers, and the public sector. There is also a need to balance long-term goals with near-term goals.

Ms. Weintraub stated that they are also looking to take an interdisciplinary approach in their work. She said that one of the topics they have been confronted with is monitoring how to access technologies from a health perspective to make sure they are being used properly. She said that health departments will want to set standards and will need to know what labs and indicators are appropriate. She expressed that she would love to see a way away from coliform and have a better way to examine what represents a real risk to human health.

Ms. Orme-Zavaleta invited Ms. Weintraub and the NDWAC as a whole to notify ORD of particular projects or topics for which they would like more information. She explained that they continue to have discussions with research institutions, and other stakeholder groups, and would be interested to share thoughts and ideas.

Ms. Godreau expressed that the ORD approach seems to be logical from a research perspective but would be interested to see how the approach would be considered from a utility perspective. She said that utilities are concerned with providing safe drinking water to their customers, and it is important to consider the system of withdrawal, treatment, and discharge as it relates to this. In North Carolina, it can be so difficult to get a discharge permit that utilities are pursuing reusing discharges from the water treatment process as raw water supply. She explained that this doesn't make sense, but since utilities are having such a hard time discharging, it creates an opportunity to think about reuse. She asked how to balance something that has horrible byproducts with the health and environmental benefits from a utility's perspective. She stated that as a utility administrator, she thinks about this topic a lot.

Ms. Orme-Zavaleta thanked Ms. Godreau for her comment and expressed that, although she did not have an answer, she would follow up with the OW.

SMALL SYSTEM STRATEGIES FOR ADDRESSING CAPACITY DEVELOPMENT AND SUSTAINABILITY: INTRODUCTION

Ron Bergman, Acting Deputy Director, OGWDW

Mr. Bergman opened the session by indicating that although the presentation has three presenters, he understands that many Council members have knowledge on this topic and welcomed their input.

SMALL SYSTEM STRATEGIES FOR ADDRESSING CAPACITY DEVELOPMENT AND SUSTAINABILITY: CHALLENGES, SUCCESSES, AND COMMON DENOMINATORS

David Saddler, Manager, Water/Wastewater and Propane Dept., Tohono O'odham Utility Authority

Mr. Saddler opened the presentation by providing a handout: Challenges Facing Small Drinking Water Systems (See Appendix III). He explained that he manages about 30 to 35 public water systems. He then discussed the challenges, successes, and common denominators related to small drinking water systems. He said that the most common challenge is viability.

Mr. Saddler explained that small systems struggle because they do not have the numbers to provide economies of scale. Although consolidation is sometimes the answer, it is not always. For example, in Alaska you could connect all of the service connections in a county and still not have enough economies of scale.

Mr. Saddler expressed that the public, and sometimes even the personnel working for the water system, do not understand what it costs to provide water. If systems can gain a better understanding and educate the public on the real costs, then it might be easier to alleviate some of the viability problems. He added that primacy agencies can lack understanding of the true costs to provide water as well, particularly if they aren't used to working with small systems. City councils, boards, and other decision-makers are also ill-informed. Mr. Saddler recognized that other challenges facing small systems are aging infrastructure and aging workforce.

Regarding successes, Mr. Saddler highlighted improved water quality, communications, networking, operator capability, and consumer education and interest. For example, he indicated that more consumers are reading consumer confidence reports.

Common denominators include regulatory changes, politics in drinking water, aging infrastructure, aging workforce, general need for affordable training, and concerns regarding more competition for available finances. He added that everyone in the sector has to deal with aging infrastructure.

Discussion during presentation:

Mr. Bergman asked whether the cost estimates provided included those associated with arsenic.

Mr. Saddler indicated that the estimates did not include arsenic.

Presentation continued:

Mr. Saddler stated that he had some topics for consideration, such as a reclassification of what constitutes a regulated water system. He said that a system with 15 service connections will never meet the economy of scale required to be viable and opined that 100 connections should be the minimum. Small system compliance issues are not going to go away, and the process will have to be modified somehow.

He also suggested that grant funding be targeted toward consolidated systems in order to be an incentive to the practice. He offered a suggestion of relaxing loans for management and operations and providing more grant money for improvements related to consolidation protocol vetted by legal authorities.

Discussion after presentation:

Ms. Weintraub referenced fee structures for small systems, and asked whether those that Mr. Saddler oversaw were based on a flat fee system per use/service.

Mr. Saddler responded that every service connection is metered. He indicated that there are a lot of small systems that still use a flat rate, e.g., $15 for everyone. He said that this

is the most unfair approach, because those that are responsible pay the same as those that are irresponsible. He said that most responsible systems meter.

Ms. Weintraub asked if even those systems that have 15 connections are metered.

Mr. Saddler stated that most do, and, in order to qualify for grants and loans, they need to meter, so those that are trying to qualify for grants/loans do.

Ms. Weintraub asked whether there was a database that included a breakdown of rate structures.

Ms. Dougherty noted that there is a survey that is conducted every five to ten years, and this information is collected from the subset of systems that respond to the survey.

SMALL SYSTEM STRATEGIES FOR ADDRESSING CAPACITY DEVELOPMENT AND SUSTAINABILITY: RCAP

Olga Morales, *NDWAC Chair, Rural Development Specialist-Environmental, RCAP*

Ms. Morales introduced RCAP and described the Partnership's mission as providing technical assistance and training services to rural communities across the U.S., developing and sustaining critical infrastructure, and promoting economic opportunity.

Ms. Morales introduced some of the challenges faced by small systems but expressed that the small utility issues that are perceived by RCAP as a national entity are not unlike what has already been discussed by Mr. Saddler. She agreed that one of the most significant challenges small systems face is that the economies of scale are not there. Politics is another issue, particularly in rural communities where the water board is the only form of local government. Education is really important in these communities. Another challenge with the board framework is that it is made up of volunteers who are often disappearing.

Ms. Morales suggested that if the rate is kept low and the system is unable to be viable, everything in the system will suffer, including maintenance. When a system has a compliance issue, this is almost always because everything else is out of order, and the compliance issue was the last straw to break the camel's back.

Ms. Morales expressed that challenges can become opportunities. Developing technical, financial, and managerial capacity is the umbrella. If each utility had these three capacities, then RCAP would not be needed. One advantage of RCAP is that they can provide ideas and approaches as an outside entity. This can help a project, a board, and decision makers to move forward.

Ms. Morales stated that there are a lot of communities where people have to leave because there are no job opportunities. The infrastructure was built, but then the population to support the infrastructure is gone, and there is no revenue to support it. In these circumstances, communities need to think beyond utilities alone and need to be

sustainable as a community. One of the first things that needs to be done is to develop local leadership, so that communities can take ownership and become sustainable.

Consolidation is something that RCAP is doing in a lot of areas of the country. They want to achieve consolidation of assets and liabilities. One recent achievement in this area was the combining of five systems (from 180 up to 5,000 connections each). Ms. Morales acknowledged that consolidation is not always feasible. She agreed with Mr. Saddler that 100 connections is the breaking point. She said that systems at this level may still have trouble, but they have a better chance of survival than those that are smaller.

Discussion after presentation:

Ms. Kennedy asked what happens to debt service if everyone moves out of town. She said that this was probably the case many times during the Great Depression, and that this is probably something to talk about during today's difficult economic times.

Ms. Morales agreed that, as a nation, we need to acknowledge this.

Ms. Taylor referenced the leadership training. She stated that they do a listening survey around North Carolina in eight counties every few years. She said that this includes large municipalities, small municipalities, and low-income communities, including mobile home parks. She expressed that the mobile homes do not have boards and asked if Ms. Morales could go into more detail on the leadership training and how it might be applicable to such small public water supplies.

Ms. Morales stated that the leadership training program recruits people of all ages. The participants are put through a four-month program, to which they prioritize what project they want to work on, e.g., open space, community development, and they then work together on the project for an entire year. After they graduate from the program, they would have worked with the group to see an entire project to completion. They see how this can work and how it can be done again. These are not individuals regularly serving on boards.

Ms. Dougherty indicated that EPA has coordinated some training for boards.

SMALL SYSTEM STRATEGIES FOR ADDRESSING CAPACITY DEVELOPMENT AND SUSTAINABILITY: UPDATE ON SMALL SYSTEMS AND SUSTAINABILITY ACTIVITIES
Mindy Eisenberg, DWPD

Ms. Eisenberg provided a presentation on EPA's efforts related to small systems and sustainability activities. She stated that the challenges were well discussed by Mr. Saddler and Ms. Morales, and that she would try not to be too redundant. She agreed that systems serving fewer than 100 connections were in tremendous need.

EPA's focus is on strengthening small system capacity through work with state partners. Ms. Eisenberg expressed that it is not just important to target education toward the operator, but also lab technicians, engineers, and other individuals within the sector.

Ms. Eisenberg then discussed the findings and best practices from the Capacity Development Re-Energizing Workgroup. EPA is in the process of putting together three fact sheets (Collaboration, Managerial Capacity, and Workforce) based on the findings and is also planning on conducting a webinar on January 31, 2012.

Ms. Eisenberg discussed CapCert Connections, which is an online community hosted by ASDWA, which is dedicated to small systems, capacity development and operator certification issues. She also discussed EPA's work with AWWA and the Water Environment Federation (WEF) on the Work for Water campaign. EPA is also working with the Department of Labor (DOL) on Job Corps and is developing a pilot project in Virginia to help students obtain a Class IV water or wastewater operator license. Ms. Eisenberg announced a new partnership with AWWA, WEF, Veterans Affairs (VA) and DOL to promote water sector careers to those involved with transitioning veterans to civilian careers.

Ms. Eisenberg then discussed asset management. EPA held an FY 2011 Asset Management webinar series, which included an Asset Management introductory session for Water and Wastewater Systems as well as Asset Management – Benefits of Implementing for State Drinking Water Programs. With regard to CUPSS, EPA is coordinating training network calls focusing on specific components of CUPSS and highlighting trainer best practices.

Ms. Eisenberg highlighted a Memorandum of Agreement (MOA) between EPA and USDA-RUS focused on promoting sustainable rural water and wastewater systems. There are four sections: sustainability of rural communities, system partnerships, water sector workforce, and compliance with regulations. She noted that they signed the MOA because both agencies realized that they could do more if they worked together and leverage in-house expertise to make the best use of limited federal resources.

Discussion after presentation:

Ms. Weintraub referenced compliance issues in context of the 100 service connection threshold that is being proposed. She said that the NDWAC needs to consider its short-term and long-term role. At some threshold, either 100 or otherwise, people still need to be protected from potential hazards. There is a need to think about how compliance is defined for the smaller systems, if it is defined differently. She indicated that there could be a creative way. Although she acknowledged that there is no near-term answer, she wanted to suggest this for further discussion.

Ms. Sparrow referenced arsenic and suggested that there have been both positive and negative estimates regarding cost of compliance. However, there is a need to make sure this is an affordable regulation. She said she was not sure what was originally done, but

from her experience, arsenic treatment has been very expensive. She said the only good outcome was that the state primacy agency worked with them on smaller systems and extended the deadline for compliance. She said this allowed for the technologies to improve and costs to come down significantly. At first, the treatment technologies were very expensive, and some did not work. However, even today, the treatment technologies are nowhere near the affordability index.

Mr. Saddler expressed that with regard to arsenic, he can only speak for Arizona. But it seemed like anyone who had a garage got into producing arsenic treatment equipment. He said some of these were never approved and now smaller systems, that purchased this equipment, are having problems.

Ms. Morales agreed and stated that these problems have been witnessed in New Mexico as well.

Mr. Woolard asked about capacity development efforts and whether Ms. Eisenberg had an estimate/goal for improved compliance/performance based on these efforts.

Ms. Eisenberg stated that she felt they constantly had trouble with this, especially with the Paperwork Reduction Act and ability to get data. She said that they are looking at the state SRF programs, e.g., Kansas provides bonus points when board members show up at trainings.

Ms. Morales stated that in New Mexico, under the previous administration in 2005, there was a decision by the Governor to pass the requirement that regardless of the funding source, systems had to meet certain criteria. This helped RCAP in providing technical assistance and capacity development, because otherwise these communities would not have called for help. They were required to meet adequate rates, water conservation plans, financing, etc. She acknowledged that not all states would be amenable to that.

Ms. Weintraub referenced the arsenic question that came up in the Re-energizing Capacity Development Report. She said that there was a statement that some systems have trouble with compliance because of a conflict with arsenic and asked why this was the case.

Ms. Eisenberg stated that it comes down to resources. She said that they want to do all great things, but it comes down to limited resources. For example, if they have to choose between investing in water loss prevention and energy measures or treatment for compliance.

Ms. Weintraub agreed that this made sense but offered another way to think about it would be in terms of environmental sustainability and trade-offs. She said that sometimes it means abandoning a source for a more environmentally sustainable source, but the options need to be weighed.

Ms. Eisenberg stated that they need to focus attention on public health goals. They want systems to think about being green and sustainable, but the bottom line is they need to be in compliance. She agreed that it is a challenge.

Ms. Weintraub suggested that one way of helping address that challenge would be to figure out how to understand and communicate overall public health benefits of environmental sustainability. She said that they often go hand in hand, although she understood that sometimes they did not.

Ms. Morales referenced Ms. Eisenberg's second discussion point. She said that she felt the Agency is doing quite a bit. She said that it appeared that the workgroups were identifying solutions. She indicated that the challenge may be how to ensure all of that information makes it down to the small systems. She felt that often times the information makes it to a certain level and then ends there. She asked how they could make sure this information gets from that level to small communities so that they know what kind of resources they have and how to access these resources. She summarized that this was the big question.

Mr. Owen referenced Ms. Orme-Zavaleta's presentation earlier in the day and the problems related to the current centralized approach and the needed paradigm shift toward decentralized systems. He said that decentralized systems can become a problem with regard to the ability to operate, manage and sustain a system over time.

Mr. Zarate-Bermudez stated that CDC has a current project underway on decentralized water reuse and public health that somewhat gets at this issue.

EPA'S EFFORTS ON DATA AND COMMUNICATION INCLUDING DRINKING WATER: EPA MOVEMENT TOWARD ELECTRONIC REPORTING AND INCREASED TRANSPARENCY

John Dombrowski, EPA OECA

Mr. Dombrowski expressed that the technology exists today for online transactions, and that there is no reason for EPA not to take advantage of this. In August 2011, as part of a government-wide review of federal regulations, EPA developed a Final Plan for Period Retrospective Review of Existing Regulations.

Mr. Dombrowski expressed that electronic reporting, or e-reporting, will have significant demonstrable savings to the regulated community as well as regulators. E-reporting has also been shown to reduce the error rate in reporting. For example, the Internal Revenue Service (IRS) notes that the error rate for electronically-filed tax returns is less than 1% compared to 20% for paper returns. Also, electronic reporting for the Toxics Release Inventory (TRI) reduces reporting errors, and in Ohio, the successful use (99% usage) of electronic reporting for the National Pollutant Discharge Elimination System (NPDES) Discharge Monitoring Reports (DMRs) reduced the error rate by 90% (from 50,000 per month to 5,000 per month).

Mr. Dombrowski explained how electronic reporting will significantly improve transparency. For example, electronic reporting will provide more complete information about the regulated universe (e.g., NPDES majors and non-majors) in a timely manner and in a readily retrievable format, without the need for costly data entry by the regulators. Improved data availability to the public will also help improve their understanding of the program. Lastly, electronic reporting will improve the quality and utility of data by ensuring that the information submitted to regulators is timely, accurate, complete, and nationally consistent.

Mr. Dombrowski summarized the draft proposed NPDES Electronic Reporting Rule. He further stated that e-reporting is a significant contributor to the overall compliance and efficiency benefits from environmental regulations, and that EPA's Acid Rain Program is one compelling example of such synergism. Mr. Dombrowski then discussed tool development by EPA, states, and third-party developers.

Another example of e-reporting within EPA includes the proposed Toxic Substances Control Act (TSCA) Inventory Update Reporting (IUR) rule, which requires use of the electronic reporting via EPA's e-IURweb to submit all IUR information directly from manufacturers and importers. EPA is also working on an electronic hazardous waste manifest (e-manifest) system. In addition, mandatory reporting of greenhouse gases (GHGs) requires reporters to self-certify and submit data electronically to EPA. The proposed TRI e-reporting rule is also an example of e-reporting within EPA.

One of this Administration's priorities is improved transparency, and ultimately e-reporting leads to improved transparency, which reduces violations and improves the environment. Mr. Dombrowski discussed improvements made to EPA's Enforcement and Compliance History Online (ECHO) program. These data used to be available in excel which limited the amount of people that could use and understand the data. The data are now available online, and the ECHO program site is a popular website that provides information on the Clean Air Act and Clean Water Act.

To summarize, Mr. Dombrowski expressed that EPA is very interested in moving toward increased and improved use of electronic reporting. EPA anticipates several benefits to the regulated community; states; EPA; and the public from this approach, and water-related programs are clearly an area EPA is focusing on for electronic reporting and improved transparency.

Discussion after presentation:

Ms. Sparrow asked whether EPA saw this application more for reporting or for interactive tools.

Mr. Dombrowski responded that they envisioned it as being more interactive. With these tools, e.g., net-DMR, TRI-ME, there is more interaction. The systems provide a quality control check on the data and flag data points that may be out of range. These controls can be built in up-front and function as interaction or as data checks. Another example is that some systems will re-populate fields based on the previous year's entry

where applicable. Net-DMR changes the limits. If there are seasonal limits, net-DMR will flag that for you. There is a lot of upfront intelligence. He suggested that this alone can help with compliance, especially when managing multiple water systems. This also saves resources. For example, if someone identifies a data quality error, it can be corrected quickly. Having more upfront intelligence is better all around.

Mr. Owen inquired about data flow and if the direction and process for data collection and flow would change with the new e-reporting process.

Mr. Dombrowski stated that it depends on the program, and that EPA is not trying to change data flow just date format so that when data is reported, it is done electronically.

Mr. Owen suggested that the obvious holy grail is to submit the data once and then everyone will have a copy.

Ms. Dougherty stated that one of the big issues on the Total Coliform Rule (TCR) negotiation is the Safe Drinking Water Information System (SDWIS). The data are only collected when the state has a violation. There is a six-year review where states provide the data, but EPA doesn't have access to that on an ongoing basis. States have to do a transaction to get the data to EPA.

Mr. Dombrowski indicated that they are working very closely with the exchange network and are actively pushing toward all having the same data set.

EPA'S EFFORTS ON DATA AND COMMUNICATION INCLUDING DRINKING WATER: DRINKING WATER STRATEGY – IMPROVING DATA FLOW AND TRANSPARENCY
Ronald Bergman, EPA OGWDW

Mr. Bergman opened the presentation by stating that what EPA is trying to do through the Drinking Water Strategy is provide monitoring data in a more usable format. The data flow is ultimately from the regulated community to EPA, but there is a step where data must be transferred between the state and EPA. The question is how to reduce transaction costs and allow people to use data more readily.

Mr. Bergman discussed how the next version of SDWIS will reduce the total cost of ownership, using proven, more economical and newer technologies. It will reduce the state information technology (IT) burden, which means more resources will be available for program support. It will address drinking water strategy needs, improve public access to compliance monitoring data, and tighten integration with the six-year review and ambient water data. It will also provide improved data analysis tools and revised data warehouse for national reporting of compliance monitoring data and other program information. SDWIS Next Gen positions EPA to: improve system usability/user satisfaction; reduce costs (EPA and States); accommodate future e-reporting requirements; and better leverage private sector innovations.

Mr. Bergman summarized communication related to SDWIS Next Gen. He conveyed that EPA has sought advice from states that have made monitoring data publicly available to see if they have recommendations on public messaging and data interpretation. They have also sought advice from states that are currently receiving compliance monitoring data electronically. In addition, they spoke with water systems that have experience in electronic reporting.

Mr. Bergman then presented the SDWIS Next Gen timeline. He stated that the contractor is currently starting the initial work, figuring out how to collect data and how it will flow. EPA's commitment to the states is to make this as easy as possible. The goal is to have regular reporting of compliance monitoring data with Next Gen. They are looking at data display efforts projected to begin in spring and summer of 2012. He then said that his question for the NDWAC is how to best engage on what that look and feel will be. He said that last year some members of the NDWAC suggested the potential for a subgroup on this to provide comments as a Council, or an alternative approach. He suggested that this can be discussed further at the next meeting.

Discussion after presentation:

Ms. St. Martin asked whether electronic reporting would be rule-specific or for all data.

Mr. Bergman stated that the components of individual rules do not all lend themselves to having one comprehensive electronic data reporting system.

Ms. St. Martin expressed that the NPDES program has been great. All of the information is posted on the website, and they have seen a huge reduction in paperwork.

Mr. Dombrowski stated that there was originally an ambitious goal to have a more comprehensive system, but there were a lot of challenges with the varying reporting requirements, so now EPA is looking at the rules individually. Some of the problems arise from the high variability among states. It would be challenging and difficult to have one program that does it all.

Mr. Bergman stated that they need to think about the large number of water systems and, specifically, at all of those that serve fewer than 100 people.

Mr. Woolard asked how this fits with the revised Consumer Confidence Report (CCR) effort and whether it would replace it.

Mr. Bergman confirmed that it doesn't replace it. The CCR is under retrospective review, and EPA is looking at all the ways for systems to provide CCRs to the public. One mechanism is electronic delivery.

Mr. Woolard stated that this would need to be thoroughly vetted with the utilities before providing all utility monitoring data directly to the consumer. He clarified that he did not see a problem with this concept, but that there was potential for confusion on the part of

the utilities if this wasn't vetted with them first. There would need to be a robust system to fix the data. There is the potential for data quality issues with a data set this large, and EPA needs to be careful about this.

Ms. Dougherty stated that the potential data quality issues could not be nearly as significant as they are now. The states have too much paper to get into the system. She stated that this presents a huge improvement opportunity for small systems. Currently, the systems manually provide data to states, which in turn manually provide data to EPA, providing multiple opportunities for data quality errors. The proposed approach cuts out a lot of the opportunities for errors. The systems provide a set of electronic data for the states to use and send to EPA.

Ms. Godreau explained that North Carolina has been doing similar types of electronic reporting, because it hadn't been done yet at the federal level. She said that electronic reporting will also help with timeliness issues related to data. She said that there is currently about a nine-month lag between when data are reported to when they are assessed by EPA. She said that the current ECHO does not actually reflect real-time data. In general, she felt that 2014 seemed very aggressive, and that states have concerns about this. Many states do not control their IT resources and don't set the IT priorities. For example, some states are currently running a version of SDWIS that is two versions behind the current. She has heard discussions that EPA will be discontinuing support on the earlier versions, which will be a real concern for states that do not have the IT support to upgrade.

Ms. Dougherty acknowledged these challenges, and that these are things that EPA is working on.

DRINKING WATER REGULATORY DEVELOPMENT ACTIVITIES
Pamela Barr, EPA SRMD

Ms. Barr provided an update on contaminant prioritization processes, regulation development and revisions, existing standards of interest, regulatory and implementation assistance tools and research. She described the general flow of the Safe Drinking Water Act (SDWA) regulatory processes. At each stage, there is a need for increased specificity and confidence in the type of supporting data used (e.g., health, occurrence, treatment).

She then discussed contaminant prioritization processes, and reviewed the 1996 SDWA Amendments. Ms. Barr discussed the status of Regulatory Determinations 3 (RD3). She indicated that in summer 2012, they expect to publish preliminary determinations, and then in summer 2013, they expect to publish final determinations.

Ms. Barr explained the three phases of the RD3approach. Ms. Barr then presented the 34 contaminants evaluated further for RD3, of which nitrosamines are being evaluated as a group. Ms. Barr also discussed Unregulated Contaminant Monitoring Rule 3 (UCMR 3). The proposed Rule was published on March 3, 2011. The Final Rule is expected in

March 2012, and then monitoring is planned for 2013-2015. There is proposed monitoring for 28 chemicals and two pathogens.

Ms. Barr then presented on regulation development and revisions. She summarized the Perchlorate Rule. EPA has initiated the process to develop a national primary drinking water regulation (NPDWR) for perchlorate. EPA continues to evaluate the science of the health effects of perchlorate and its occurrence in developing a Maximum Contaminant Level Goal (MCLG) and proposed NPDWR. EPA is evaluating the feasibility and affordability of treatment technologies to remove perchlorate from drinking water and examine the costs and benefits of a Maximum Contaminant Level (MCL) and alternative MCLs.

Ms. Barr announced that EPA is currently developing a group NPDWR for carcinogenic volatile organic compounds (cVOCs) that improves or maintains public health protection. They are assessing up to 16 potential cVOCs based upon DWS factors. EPA is currently evaluating options for setting a cVOC MCL or MCLs for the group. Stakeholder meetings and consultations are planned for March 2012 through September 2012, and EPA expects a proposed regulation in September 2013.

Ms. Barr also discussed the TCR Revisions and Lead and Copper Rule (LCR) revisions. EPA published the proposed revisions to the TCR in the Federal Register on July 14, 2010. The revisions provide a more proactive approach to public health protection with monitoring results shifting from informing public notification to informing investigation and corrective action. The proposal was based on the Agreement in Principle signed by the Federal Advisory Committee in September 2008. EPA expects to promulgate a Final Rule in 2012. The LCR was promulgated in 1991 and revised in 2000 and 2007. The proposed revisions are expected in 2012 and will address "long-term" issues, such as partial lead service line replacement among others.

Ms. Barr summarized the existing standards of interest, including the Long Term 2 Enhanced Surface Water Treatment (LT2) Rule, fluoride, and chromium. She indicated that fluoride is always of interest. As a follow-up to the last NDWAC discussion, she mentioned that CDC has proposed to lower their threshold to the lower part of their range. EPA has also released two reports on health and exposure. She also summarized regulatory and implementation assistance tools, including the Expedited Method Approval (Regulatory Tool) and Optimization Program (Compliance/ Implementation Assistance). Regarding research, Ms. Barr highlighted ORD's restructuring as well as numerous strategic planning meetings that OW has held to communicate their short and near term drinking water research needs to ORD.

Discussion after presentation:

Ms. Sparrow asked how many states require fluoridation and whether a check on the CDC's website on water fluoridation would have that information.

Ms. Barr stated she wasn't sure, but that CDC might have this information. She stated that some states require it, while others encourage it.

Mr. Zarate-Bermudez indicated that he wasn't sure either but encouraged a look at the CDC's website on water fluoridation.

Ms. Sparrow asked about the status regarding the NDWAC's recommendation to get the word out to states to enforce partial lead service line (LSL) replacement.

Ms. Barr said that they talked to OECA and made the recommendation to EPA, and that is still being worked out.

Ms. Godreau asked about the definition of affordability and how that is defined in regulations and whether the definition is still appropriate.

Ms. Barr stated that this was discussed a lot at some of the previous NDWAC meetings, and that the NDWAC said they didn't want to hear about it anymore. It is very complicated.

Ms. Dougherty indicated that there was probably a good history of the discussion on the NDWAC's website around 2002-2003, and the last time it was discussed was probably 2009.

Ms. Godreau referenced VOCs being assessed as a group. She stated that ASDWA said some in the group don't share a treatment technique (TT) or analytical method and asked how would this factor into the determination to study them as a group.

Ms. Barr stated that EPA is aware of this and is looking at it further.

Ms. Godreau asked whether they should be looking fundamentally at the SDWA. At the state level, they struggle with simultaneous compliance issues.

Ms. Dougherty expressed that there is still a majority of systems that don't treat, they only disinfect. This was part of the discussion with the Drinking Water Strategy – what should the drinking water system of the future be. Unfortunately, that is not the way the law is written, and EPA would have to open up the law. Since it is a newer law when compared to some other environmental laws and written better than others, it would be best at this point to try to stick with it.

Ms. Weintraub referenced the cryptosporidium methods. In context with that and other methods, she asked how much EPA knows about labs' performance on a day to day basis. She asked whether there is a way to report if there are issues with a method.

Ms. Barr stated that sometimes there are. She said that they send samples that are spiked with a known amount of cryptosporidium to test. They measure and report back to EPA so that EPA can get a sense of performance. There are also QA/QC on other samples. In

this way, there are some indications, and EPA has disapproved at least one lab based on this. EPA got word from a utility about the error and audited the lab. With the current budget situation, it is hard to conduct audits unless they do a lot of sampling or EPA hears of issues.

Mr. Zarate-Bermudez referenced nitrosamines being evaluated as a group, and said that one of the issues is exposure to food in certain age groups. He asked which foods were of concern.

Ms. Barr said that they can be thought of as "baseball game" foods, e.g., hot dogs and other processed meats.

Ms. Weintraub said that she came across a study from the 1970s that looked at individual foods, but that there is new work also. She said that she would send around this new study.

Mr. Zarate-Bermudez said he had also heard that fish could be an issue and was wondering if there was an interface between water and food.

Ms. Barr said she was unsure about this, but would look.

Ms. Morales adjourned the meeting for the day.

Meeting Summary: Thursday, December 15, 2011

HYDRAULIC FRACTURING AND SOURCE WATER PROTECTION: A NATIONAL PICTURE
Olga Morales, NDWAC Chair, Rural Development Specialist-Environmental, RCAP
Ann Codrington, Director, DWPD

Ms. Codrington stated that she would be discussing drinking water in general and then on two specific topics: hydraulic fracturing and drinking water protection. She had four key messages. First, there is no doubt that natural gas is a critical resource. Further, as EPA works nationally, it is important to take concerns over protecting the environment very seriously. She stated that the ultimate goal was to be able to extract natural gas resources while protecting the environment and not have to choose one or the other. She asked the Council to think about how EPA could achieve this.

Ms. Codrington explained that the hydraulic fracturing process is a procedure commonly used in the oil and gas industry to enhance subsurface fracture systems to allow oil or natural gas to move more freely from rock pores to production wells. It is not necessarily used by just the gas industry; it can also be used to stimulate drinking water wells. The chemicals that are injected into the wells is what distinguishes the uses. Drilling is done horizontally or vertically, and it is changing the landscape. In the last ten years, the idea of directional drilling has allowed the industry to access more resources. The ability to go in several directions means there is access to thinner threads of shale that would not have been extracted otherwise. Ms. Codrington showed a hydraulic fracturing schematic and described the process in detail.

Ms. Codrington presented a map for the Council to gain a sense of where the gas and oil formations exist, and where additional directional drilling activity could be seen. She briefly reviewed public concerns regarding hydraulic fracturing, including: ground and surface water contamination; wastewater disposal, which can lead to problems related to drinking water protection; changes in the landscape, which can impact runoff; air emissions; and public health concerns related to what is being pumped into the wells; material stored on site; and disposal as well as worker safety and seismic activity concerns.

Finally, she mentioned concerns with water availability and competing uses.
Ms. Codrington noted that there is a lot of water required: two to five million gallons per well depending on the site. Sometimes the water is from a public water supply, and there are concerns related to decreases in the water table.

Discussion within presentation:

Mr. Zarate-Bermudez asked about the amount of water used for fracturing operations.

Ms. Codrington responded that the figure is per operation, and each radial requires millions of gallons. Further, there could be six wells on one pad, each using up to five million gallons.

Presentation continued:

Ms. Codrington addressed potential impacts to water quality. EPA is concerned that injected fluids may be impacting groundwater. The SDWA really governs the potential impacts, so it does not limit EPA to what is being injected down the well. Therefore, fluid that migrates out of a well is also a concern.

EPA is also concerned with other release opportunities, such as fluids being released up from a well. This can happen a mile down the pipe if there is a flaw in the casing that results in a leak. Improper siting of wells is also a concern. One thing EPA is seeing are induced seismic earthquakes, which according to the U.S. Geologic Survey (USGS), are the result of concentrating a large volume of water in a small amount of time in a formation. Under the CWA, it is important to address these issues and there are provisions that can be added.

She also stated that there can be surface water impacts that result from water treatment works that are incapable of treating wastewater from the drilling operations. Consequently, the wastewater passes through the system and into the water source.

Ms. Codrington continued by saying that states are doing a lot more to look at their regulations with regard to setbacks to make sure drinking water is protected. Some are designating source water protection zones as areas where drilling should be avoided.

A lot of the questions raised related to drinking water are being discussed and analyzed in an EPA study. In 2010, they started to design the study, and have reached out to the public asking how broad it should be and what it should entail. The study examines a research question for each step of the water use cycle within hydraulic fracturing operations.

As part of the study, EPA peer-reviewed literature and analyzed data from federal agencies (USGS, Department of Energy (DOE), and US ACE), state agencies, hydraulic fracturing service companies, gas and oil well operating companies, and other public sources. These data will be used to inform research activities and to provide current information on hydraulic fracturing operations. Case studies will also be used as an opportunity to look at the hydraulic fracturing processes across the country. The study will include scenario development regarding the potential impact as well as laboratory studies and toxicological assessments.

Ms. Codrington indicated that there is a misunderstanding of what the federal roles are with regard to hydraulic fracturing. The CWA has authority over water quality criteria and standards, effluent limitation guidelines, and the NPDES Program. The SDWA has the Underground Injection Control (UIC) program, which regulates the use of diesel fuels in the hydraulic fracturing process as well as water produced from the processes and flow-back injections. There are also emergency authorities under many acts that deal with issues related to public health and impacts to water sources.

Under the CWA, there are two approaches: to address either direct discharges or indirect discharges. Efforts under the CWA to address hydraulic fracturing are targeted to publicly-owned treatment works and centralized waste treatment facilities. When wastewater is not injected in the hydraulic fracturing process, it is sent to these facilities for treatment. EPA recently released NPDES frequently asked questions (FAQs) related to shale gas flow-back and produced water discharge. This will provide awareness to permitting authorities. Currently, there are no national standards for the disposal of wastewater discharged from natural gas facilities. EPA recently announced that it will be creating a schedule under 304(m) of the CWA to develop pre-treatment standards for shale gas.

Ms. Codrington stated that the Energy Policy Act of 2005 changed the definition of UIC and exempted the injection of fluids or propping agents (other than diesel fuels) from the definition of underground injection. Since that time, hydraulic fracturing is being used much more. The April 2011 Congressional Report found that more than 32.7 million gallons of fluids containing diesel fuels were used in hydraulic fracturing. EPA is providing guidance for permit writers on hydraulic fracturing injection where diesel fuels are used. They expect to put this out for public comment next year. The UIC Class II well permit provides a framework.

Discussion within presentation:

Mr. Woolard asked which wells require an EPA permit.

Ms. Codrington responded that if diesel fuel is used, a permit is required. Based on primacy, the state is given authority to issue the permit. Some states have applied for primacy for just one class of well. In the case where a state does not have primacy to issue a permit for a Class II well, EPA issues it.

Mr. Woolard concluded that if he wanted to drill a hydraulic fracturing well, without using diesel, then he would not need a permit.

Ms. Dougherty stated not under SDWA, but perhaps under the state authority.

Ms. Sparrow asked for the basis of the Act.

Ms. Codrington responded that EPA had done a study in 2004 of coal bed methane and identified the use of diesel fuel as a concern. In 2005, when congress was deliberating, they also raised the concern.

Ms. Sparrow stated that she understood about the use of diesel, but what about hydraulic fracturing.

Ms. Dougherty answered that it has a long history, but EPA had not considered hydraulic fracturing injection before they did the 2004 study, and Congress wanted to make sure they included it.

Presentation continued:

Ms. Codrington provided a summary of the proposed guidance. The UIC requirements are the only requirements within the Agency that address construction and siting of injection wells. With the current requirements of Class II wells, they need to case a well to prevent movement into groundwater. There also needs to be monitoring and testing of these wells to maintain integrity, especially when high pressure is being applied repeatedly.

The regulations require states and EPA to use a quarter mile as the radius for the area of review around a proposed well site. It is clear that it is not necessarily appropriate for directional wells that extend beyond a quarter mile. Class II regulations provide permit writers with some discretion on how they will address these issues when issuing the permit.

Discussion within presentation:

Mr. Owen asked if the permit writers are with EPA or the states.

Mr. Codrington answered that both state and EPA staff develop permits. The guidance they are drafting is for EPA, but they hope states will use it.

Ms. Kennedy asked that in California, if it would be the State Water Resources Control Board that would issue the permit.

Ms. Codrington responded that she thought it would be the state oil and gas agency. When a state comes into primacy, they designate the authority that has the control. A lot of states choose the oil and gas agency for that class of wells.

Ms. Kennedy followed up by asking how that deals with water.

Ms. Codrington answered that when a state applies for primacy, they designate the responsible department but how it chooses to split up the program is at their discretion.

Ms. Godreau stated that she was trying to get a handle on the use of diesel fuel and asked if there was a Class II well before 2005.

Ms. Codrington responded that the types of Class II wells include enhanced recovery, disposal wells, and hydrocarbon storage wells. The activity of hydraulic fracturing with diesel fuel is considered within oil and gas recovery. Congress excluded hydraulic fracturing other than when using diesel fuel.

Ms. Dougherty commented that there is a huge industry within oil and gas that would still be permitted.

Ms. Weintraub asked if this also included the disposal of wastewater and if that gets classified as a Class II well.

Ms. Codrington responded that if they inject water or brine, then yes it would be covered.

Ms. Weintraub asked whether it would be exempt if they used diesel to extract.

Ms. Codrington responded no, only during recovery, not disposal.

Presentation continued:

Ms. Codrington concluded by saying there are two additional items she wanted to mention. First, states are changing their regulations to address the increased use of hydraulic fracturing. These changes include provisions for exposure, well production, etc. Second, the DOE established an advisory group that is charged with reviewing the issues related to hydraulic fracturing and environmental impacts. The advisory group issued a report last month, and one of the things they talked about was diesel fuels. They thought the use should be taken out. The need for modernizing the rules related to hydraulic fracturing and water quality is highlighted, and short term impacts are being investigated. This work is in conjunction with EPA's work.

HYDRAULIC FRACTURING: SOURCE WATER PROTECTION CHALLENGES
Victoria Binetti, EPA Region 3

Ms. Binetti displayed a map of one of the largest natural gas shale plays, the Marcellus Shale, which encompasses a large part of EPA Region 3. She stated it was a relatively recent awakening for them, and there has been a tremendous expansion of drilling activity since 2007. They have had a history with the oil and gas industry, but the technologies that have come into play and the recognition that the Marcellus Shale is a developable resource have really opened the door.

She continued by commenting that Ms. Codrington had already reviewed the potential impacts on source waters and the rules that affect industry oversight. In many cases state programs have been revised to increase protection with increased gas production activity. Pennsylvania has completely revised its regulations, and West Virginia is in the process of improving theirs with some provisions specifically addressing sources of drinking water. Water withdrawal and consumption, well siting (including storage), well construction, management of flow-back and produced water, and wastewater treatment all present challenges for regulatory programs. Adding to the complexity, water rights laws vary across the nation. Some states' laws do not address water withdrawals, including Pennsylvania.

Ms. Binetti stated, however, that Pennsylvania has two interstate commissions that have the authority to regulate water withdrawals. They regulate activities in the Susquehanna River Basin (including the Susquehanna drainage in New York, Pennsylvania and

Maryland) and the Delaware River Basin (which includes portions of Pennsylvania, New York, New Jersey and Delaware). A large part of New York's drinking water supply comes from the Delaware River basin. Because the Delaware River Basin is a possible location for natural gas development from the Marcellus Shale, the Delaware River Basin Commission has proposed regulations to govern water withdrawal and drilling activities affecting water quality. There has been a tremendous amount of public engagement. Pennsylvania is now requiring water management plans in gas well permit applications, where applicants identify sources of water to be used for hydraulic fracturing and where the produced water from gas wells will be eventually disposed, among other issues.

The Susquehanna River Basin Commission (SRBC) is managing water withdrawals by considering many factors, including the volume of water requested, water availability and existing uses and needs. SRBC suspended permitted water withdrawals this past year due to drought. Then, record rainfall occurred in the basin in August flooding much of the watershed including many of the gas drilling pads.

Fragmentation of the environment is also a primary concern. Many of the wells are in rural areas. Regarding stormwater management, the oil and gas industry is exempt from soil and erosion controls. There are also concerns about spills and releases; sound chemical storage on site is therefore important.

With regards to setbacks, EPA's experience is that many may not be sufficient. For example, in Pennsylvania more stringent regulations are being looked at with regard to well pad setbacks, which are currently 200 feet from public water supplies, private wells, and intakes. [*Update: on February 14, 2012, Gov. Tom Corbett of Pennsylvania signed the Marcellus shale Law, which includes the following provisions (among others): increases well setback distance from 100 feet to 300 feet for streams, rivers, ponds and other water bodies, and from 200 to 500 feet from buildings and private water wells and to 1,000 feet for public drinking water systems.*] West Virginia is considering more stringent regulations as well. [*Update: New legislation in west Virginia establishes gas well setback requirements of 250 feet from a water well or spring; 100 feet from perennial streams, lakes, ponds, reservoirs and wetlands; 300 feet from natural trout streams; and 1,000 feet from the surface or ground water intake of a public water supply.*]

Discussion within presentation:

Mr. Woolard asked for the lifespan of these wells.

Ms. Binetti responded that it is about 40 to 50 years.

Presentation continued:

Ms. Binetti stated that a number of local governments have tried to protect their water resources using zoning ordinances. Some have been successfully adopted, but in many cases, proposed local ordinances have been defeated at the local government level,

particularly in Region 3. The threat of state preemption is significant. This is the concept that local authorities should not be empowered to determine where wells are placed; rather, the state should. There has been a public movement to prevent well siting in certain areas and local governments have been challenged.

Discussion within presentation:

Mr. Zarate-Bermudez asked for more details on how this has been developed, and if there has been local education on the issue.
Ms. Binetti responded that many localities do provide education. Penn State University and several other academic institutions provide information to local communities in Region 3. Very often communities do not have the technical background. From a zoning perspective, there is a lot of local activity going on. While the public might look to local government to control well siting, local ordinances often cannot be sustained.

Presentation continued:

Ms. Binetti continued by stating that state requirements for the length and strength of well casings are being revisited and tightened. Failures in gas well construction have been the source of contamination to some private water wells.

There is a national concern about the chemicals used in the oil and gas industry. In Region 3, experience indicates that only five to ten percent of the water injected for hydraulic fracturing is returned to the surface, and the rest can be considered a consumptive use and remains underground. Because of public concern about the chemicals used, there has been a movement toward disclosure. Sometimes it is mandated by the states, but it is not universal. Overall, there has been an increase in the number of states requiring more complete disclosure of chemicals used in hydraulic fracturing.

Ms. Binetti stressed that there is more information now than there was in the past with the FracFocus website, developed by the Ground Water Protection Council (GWPC) and Interstate Oil and Gas Compact Commission (IOGCC). The website allows one to see information on a well-specific basis, including chemicals used and for what purpose; but not all companies are participating.

Wastewater treatment facilities are not built to remove some of the contaminants EPA is concerned about, and those contaminants are discharged to surface waters. There has been a significant increase in interest in water quality monitoring of wastewater. Increases in trihalomethane concentrations have been observed in the last few years in water systems in areas of Region 3, many of them relying on purchased water. The higher trihalomethane concentrations may be linked to high bromides in source waters.

Discussion within presentation:

Mr. Owen referenced the issue of bromide (hypobromous acid), and its higher molecular weight compared to chlorine and faster-forming properties. He stated that there has been

a considerable amount of work in California on bromine. He could send Ms. Binetti some background or she could Google Stuart Krasner.

Ms. Binetti thanked Mr. Owen, and stated that this is the kind of information they are trying to obtain.

Presentation continued:

Ms. Binetti stated that Dr. Stanley States of the Pittsburgh Water and Sewer Authority, who has been very active on the water security front working with water quality managers at public water systems, states and EPA, is working with the University of Pittsburgh to investigate the bromides issue in the Allegheny River. Other investigators in Pennsylvania and West Virginia are doing water monitoring and basic and applied research. Monitoring at fixed network stations has been expanded by the Pennsylvania Department of Environmental Protection to obtain additional real-time monitoring data on water quality conditions.

Although all recommendations have not been adopted, the Governor's Marcellus Shale Advisory Commission (established to advise the Pennsylvania Governor and Legislature) has offered a number of recommendations regarding water quality protection for consideration, such as extending pre-drilling notification and sampling (and presumed liability on the part of the driller for private water well quality/quantity impairments) from 1,000 feet to 2,500 feet, and requiring operators to track and report on transporting, processing, and disposal of shale gas extraction (SGE) wastewater. Ms. Binetti concluded her presentation by summarizing a number of actions that could be taken to further protect water sources.

Discussion after presentation:

Ms. Taylor thanked Ms. Binetti for her presentation. She understands that Ms. Binetti is speaking on behalf of the Administration, which has stated that gas is a critical future energy resource and important to national security. Her organization and their research have shown that efficiency has the capacity to meet the energy needs gas would supply, can protect water quality and have economic benefits for residents; businesses; and greater employment. There is growing evidence that companies are re-selling rights to foreign investors. NDWAC and the Administration need to be aware of this.

Ms. Taylor continued by stating that poorly cased wells have been cited, but gas and other contaminants may be moving through new or existing fractures, too. British Columbia issued a 2010 warning that interconnection of fracture zones can lead to blowouts of producing oil and gas wells some distance away. She noted that she could share these citations.

She further requested a brief summary of the Pavilion, Wyoming study released last week. A summary will give the Council a good grasp of the basic facts of the study, and it will help them communicate with the public.

Ms. Codrington pointed to the web for their reaction to Pavilion. EPA, at the regional level, asked to investigate water quality consequences. They are working with the State of Wyoming and the owners of the gas shale to, if possible, identify potential sources of contamination. Monitoring has been ongoing for some time, and there are a number of drinking water well tests. A draft report of the investigation is out for public comment for 40 days. It will undergo an independent peer review followed by a 30-day review period.

Ms Taylor continued that she believes EPA has come to some conclusions in the study and asked if they could summarize.

Ms. Codrington said she could not because she did not have that information with her.

Ms. St. Martin stated that yesterday they talked about EPA's movement toward transparency and electronic reporting. She asked how that movement will help utilities understand the issues around hydraulic fracturing so they can be a resource to local planning commissions and city councils. Ms. Binetti mentioned zoning as one of the primary controls because the CWA and SDWA do not necessarily cover these issues.

Ms. Binetti responded that one of the things that helps them with bromide are data provided by utilities, e.g. brominated trihalomethane data. Information and data that utilities may have on chemicals that are not nationally regulated, such as bromide, is where utilities can take steps and can help on the national level. If such data were available electronically, the drinking water community could get a national picture.

Ms. Codrington expanded by saying one of the things that is hard about this issue is that regulation development takes place at the state level and states have varying levels of communication with the public. Further, some have their own data systems, while others are using FracFocus.

Ms. Dougherty stated that when they were talking about e-reporting, it was with regards to the CCR. EPA has a data system for UIC that is less well-populated. But the real issue is where these activities are happening and what they are near. When you look at geo-mapping it is not necessarily EPA, but at the state and watershed level that it is important. Some of the Regions have been working on this issue. As they receive information, they try to get it on the website quickly. With regard to the data collected on Pavilion and the draft report on the web, they are trying to figure out how to use what they have and be more transparent. They do not have all the tools, but they are working on it.

Ms. Godreau stated that she will use bromine as an example. She had two questions. First, she asked if there is a water treatment plant with a violation and what resources does EPA have to make the discharger accountable.

Ms. Binetti responded that states and EPA have different regulations. First, there needs to be a connection between the source of the bromide and the water well or the water system intake. Bromide is not regulated, because it has never been at levels that impact health. Even if there is a suspected issue, unless there is a water quality standard, it is difficult to do anything. EPA is working with the states. However, states can request the dischargers to monitor bromide in wastewater discharges, so EPA can get a handle on where it is coming from. Developing standards is a lengthy process. Developing the relationship between bromide and source water is another issue all together, and they welcome comments. Region 3 and the Office of Research and Development are doing research and combining it with other studies underway to determine what is an acceptable level of bromide in a stream or river that will not contribute to excessive formation of trihalomethanes. If the studies could support a direct link, the process could move more quickly.

Ms. Godreau asked what would happen once they have established that link.

Ms. Binetti contended that once established, you could work backwards and develop NPDES discharge permit requirements.

Ms. Godreau asked if they could have the water quality standards before setting the permit limits.

Ms. Dougherty stated that through the non-point source program, as related to stormwater discharges, there are two ways. The first is a water quality standard through guidelines, and the second is to make everyone in the industry perform treatment. The Agency has announced that it is going to do this for the coalbed methane and shale gas industries, requiring pre-treatment of stormwater discharges. It is a several-year process.

Ms. Godreau continued that her second question was about yesterday when they talked about crumbling infrastructure. Any engineered facility has a life span. What has been the conversation about maintenance of these facilities once they have been closed?

Ms. Binetti said there are closure standards for the oil and gas industry.

Ms. Godreau asked about the below-ground infrastructure.

Ms. Binetti stated that well closure regulations require that the pressure be maintained.

Ms. Godreau asked who follows up after the closure.

Ms. Binetti responded that there is a finite life expectancy. However, there are many thousands of improperly closed abandoned natural gas and oil wells in Pennsylvania, reflecting a long history of drilling; these wells are another source of methane.

Mr. Saddler asked which federal agency has ultimate authority to enforce this. He thinks they have a situation where the horse has left the barn. In Pennsylvania, all the

theories regarding well abandonment are gone when seismic activity is considered. There are no real controls to clean up the mess with a for-profit organization. No one understands well production. They do not know what the law is going to be. They do not know what the industry is using, because it is a trade secret. There are unknown concoctions being injected into swift-moving aquifers. He added that with horizontal laterals, who knows how far this goes. He asked Ms. Taylor if she had read the Pavilion report.

Ms. Taylor responded yes, and it was a stellar, rigorous study, which she encouraged folks to read. The study found clear evidence of contamination by compounds associated with hydraulic fracturing in EPA's deep monitoring wells. She added that she could send out a link to EPA's webpage for the study. In Pavillion, the hydraulic fracturing had been done on very shallow shale formations, a concern in North Carolina, too.

Mr. Binetti stated that she appreciated the Council's comments, and she thought it was important dialogue for this group.

Mr. Woolard asked that if existing water quality standards were used, e.g. for total dissolved solids (TDS), as a process for bromine, would there be something in place that they have looked at as a regulatory mechanism.

Ms. Binetti responded that it does not appear that there is a direction relationship between TDS and bromide. States have used TDS to protect their drinking water intakes. Conductivity has sometimes been used as a surrogate for TDS.

Ms. Weintraub noted that, in the draft plan, it stated that the impact of repeated treatments on wells results in seismic activity. Additionally, they were not able to identify partners. There may be opportunities for partners that have participated, so she hoped they will not discount that in the study.

Ms. Codrington stated that the study plan is very well set at this time. The Office is gathering up all the sources it can fit into the time frame as well as funding. While that particular aspect is not included in this round, it does not preclude it from future rounds.

Ms. Weintraub continued by stating that their agenda called out input in assisting in identifying stakeholders. She asked for more information on what that meant and was there something that they are specifically seeking. She suggested that maybe they can discuss it this afternoon.

Ms. Codrington said that one of the things she has found is that the information that gets communicated is not always consistent. When you hear from federal agencies, even with varying mandates, there is consistency, such as protecting the environment. DOE states they protect resources as a useful tool in securing our energy future. EPA has the same protection for the environment, as does the Bureau of Land Management (BLM). However, when they go into crowds that are industry and environmental groups, industries are not concerned with environmental protection. There is no documented

contamination, and it is difficult for anyone in the audience to get a sense of what is happening. The information being conveyed by various parties is not consistent. She asked the Council what they think should be communicated and how.

Ms. Morales stated that what concerns her is that a lot of the power to regulate is falling on the hands of states and local government. She will add to yesterday's discussion with regard to the ability to make decisions by asking how decisions are being challenged. She has not heard anything about financial responsibly. She thinks it needs to be looked at. With all of them, who is going to enforce it so the environment is left the way it should be? Finally, a lot of this is happening below the radar. They talked about communication. The industry will make the decision that is best for them. She asked how do they curtail or stop it. Ms. Morales then thanked the presenters for their great presentations and discussion.

ADVANCING DRINKING WATER PROTECTION
Olga Morales, NDWAC Chair, Rural Development Specialist-Environmental, RCAP
Ann Codrington, Director, DWPD

Ms. Codrington stated that EPA has been focusing on phosphate and nitrate issues as they relate to drinking water.

The Source Water Collaborative includes 23 national organizations that represent the federal, state and local perspective. Over the last year, the Collaborative has chosen to talk about agriculture and has worked with local communities, specifically along the Delaware River and Salmon Falls at the New Hampshire/Maine border. They have held supporting workshops to talk about drinking water protection.

Geographic Information Systems (GIS) mapping is one of the most important things EPA can do, and they need to ensure that information is provided in a way that does not compromise security. GIS will give the public a better sense of what is going on in their community, particularly how nutrients are impacting their drinking water. GIS expands the way data can be used to show where a problem needs to be addressed.

On March 16, 2011, Ms. Stoner signed a Memorandum that urges the partnership with states to address the issue of nitrogen and phosphorus. It is a great tool for water protection. One of the things EPA has been working on is partnering with USDA and the Future Farmers of America (FFA) program in high schools. In doing so, they can inform future generations about the impacts of agriculture and encourage them to use best practices. EPA is also sharing data with the National Rural Water Association (NRWA), which in turn can target assistance activities. Finally, with representatives in almost every county, partnering with the National Association of Conservation Districts (NACD) allows EPA to reach farmers and other landowners with drinking water protection outreach materials.

NUTRIENTS AND DRINKING WATER IMPAIRMENT
Victoria Binetti, EPA Region 3

Ms. Binetti began by saying she has been trying to focus discussion on the very real impacts of nutrients in drinking water on health. The cost of treatment to remove nitrates is significant, and because they do not have costs quantified very well, customers do not understand what it is they are paying for. On the national level, where you have surface water nitrogen problems, you will most likely have groundwater problems.

The Chesapeake Bay has been a great focus of efforts for the past 30 years. However, there are many efforts across the country, both inland and coastal, that deal with nutrients and sediments. In the Chesapeake Bay there are hotspots for nutrients, and they also see elevated levels in drinking water. If resources are leveraged, agencies are more inclined to undertake efforts.

For Watson Run Watershed in Lancaster County, they use tools that are provided to them in the SDWA and CWA, as well as non-statutory and non-regulatory approaches. This particular area has a concentration of 20 small farms within a 2.4 square mile area. Members of the Amish community do not favor government control, so they work with partners in the Lancaster County Conservation District to gain access to farms. They did farm visits, not inspections, to examine manure management strategies. They wanted to see where farms were failing to implement farm waste management requirements and sample drinking water wells. They tested 19 out of 24 farm wells. Nine were positive for coliform; six were positive for *E. coli*; and 16 exceeded the nitrate MCL. The few that did not show high levels had water treatment devices installed. These results enabled a discussion of the health impacts of how they were managing manure. Farmers were daunted by the potential health risks, for themselves, their neighbors, and their animals. EPA will be visiting farmers next year.

The framework for nutrient pollution reduction was advocated in the memorandum released in March by Ms. Stoner. Ms. Binetti thinks the framework is an opportunity to reach across to other departments, offices, and agencies. Opportunities she sees are to prioritize watersheds for load reductions, ensure effectiveness of NPDES permits, address stormwater and septic systems, and establish accountability and verification measures, among others.

MEETING OF THE NATIONAL DRINKING WATER ADVISORY COUNCIL: A PRESENTATION BY THE ASDWA AND NSWC
Jim Taft, ASDWA and National Source Water Collaborative

Mr. Taft stated he wanted to build on some of the concepts Ms. Codrington and Ms. Binetti talked about. He commented that the National Source Water Collaborative focuses on upstream activities to take the pressure off of treatment plants to meet standards. In the early years, the Collaborative was principally used to exchange information and awareness of perspective missions, resources, and strengths. It then developed some outreach materials that are effective in reaching goals and objectives.

He then offered a summary of Collaborative member activities, such as the American Planning Association's "Your Water-Your Decision" guide that can be used by local officials to make decisions and identify where to go for additional information.

He then summarized some of the specific projects of the Collaborative, such as the Salmon Falls initiative; the Delaware River Basin initiative; and work in Raleigh, North Carolina. They are working with USDA and NACD, two of the most important groups to work with. For example, the Collaborative had a newsletter article in NACD's national newsletter and will be speaking at NACD's national conference in January 2012, offering an introductory-type session.

Mr. Taft then discussed the keys to success they have seen across the country. First, it is a "team sport." It is also important to leverage existing authorities and build on what folks are already doing. For example, in Salmon Falls, the main NRCS representative had never been approached before.

Mr. Taft concluded by encouraging the Council to visit the Collaborative website (http://www.sourcewatercollaborative.org/) to find partners that can work with them on source water protection activities.

Discussion after presentation:

Mr. Owen thanked the presenters. Regarding the dialogue with USDA, while there were benefits in the examples, he also felt that the best way to get benefits is to manage the resource. He considers what is happening with phosphorus and its availability globally. He contends that in 50 years or longer, there will be reduced quantities that will impact the food supply. They need to look at the ability to manage the resources and reuse them. The cost of phosphorus has gone up five times in the last decade. How do they manage it, not only to protect water resources, but also in their industry? Mr. Owen asked if this was in their dialogue with USDA.

Mr. Taft said it was referenced to some extent, but it is an area to follow up.

Mr. Owen continued by suggesting that they keep it in their view; it is in their best interest.

PUBLIC COMMENT

Mr. Alan Roberson, Director of Regulatory Affairs for the AWWA submitted written comments. He also stated that he serves on the Board of Directors for Fairfax Water in Virginia. He offered a brief summary to the Council.

On behalf of AWWA, he wanted to address SDWIS Next Gen and its implications to water utilities. Their utility members spend millions of dollars on analysis, shipping, reporting, and doing the recordkeeping required under the CWA. They need to make sure that data are accurate. It seems the focus of EPA is to make the data available but

not usable by the users. He is not sure having an app on an iPhone to get information on their water utility is the best source. Consumers should call their utility directly to get information. He thinks EPA needs to do more work on how they can optimize the CCR report. AWWA did research on how to do that, and more research is needed.

There are 5,200 community water systems that do not disinfect or report on lead, copper, or total coliform. With just chemical parameters, there are ten million records just on monitoring results every year. Then add nine metadata points and N, N Diethyl-1,4 Phenylenediamine Sulfate (DPD), it becomes a very big database and AWWA wants to make sure the data are accurate.

With regards to e-reporting, the utilities need to check off the data before they move into a state or federal database, and utilities need to have the ability to correct them. This is also something that is difficult to do in the current system. There are more details in the written submission. Please consider these points in your deliberation.

Ms. Morales thanked Mr. Roberson for his comments.

Continued discussion after presentation:

Ms. St. Martin stated that there has been a lot of work done by the CEQ that can be a resource to this group.

Ms. Dougherty said that while they wait for Ms. Nancy Stoner to arrive, she wanted to recognize their exiting members. Five have terms that are ending, three were with them today: David Saddler, Lisa Sparrow, and Hope Taylor. She presented each with a plaque and thank you letter. The other members were Robert Vincent and Dennis Diemer.

EPA OFFICE OF WATER PRIORITIES
Nancy Stoner, Acting Assistant Administrator, OW

Ms. Dougherty introduced Ms. Stoner. She has been the Acting Assistant Administrator since February. She will talk about the overall priorities of the OW as a whole, and hopefully the Council will see the drinking water implications.

Ms. Stoner thanked the Council for helping OW and stated that their input is very valuable. She also thanked them for the work that they do in general to protect public health and water resources. EPA recognizes that most of the work is done outside of EPA. She indicated that she would discuss big-picture themes then touch upon a few specific initiatives.

She continued that she wanted to talk about jobs and the economy and how water and wastewater fit into that. She thinks that there is a need to remind people about how valuable water resources are to our economy and way of life; it is not on the top of the general public's mind as it is for the Council. How does OW talk about needs, which are great, and the challenges, which are also great? There are needs assessment, but also

trends, e.g., urban growth, climate change, etc. that add to the challenge. These can also be seen as opportunities for our society to innovate with new industries, jobs, manufacturing, and services. She stated that there are a lot of others talking about this, and that earlier today she went to a *Green for All* event in Edmonston, Maryland. The mayor hosted the event, which was about rebuilding its infrastructure, reviving the community, and creating jobs.

She continued that the American Society of Civil Engineers (ASCE) put out a report this week, *Failure to Invest*. ASCE stated that if we do not invest in our infrastructure, we would lose a half million jobs in the U.S. by 2020, which is not that far away. She stated that she is trying to suggest a vision of where she would like to see us go as a nation, making smart investments in water and wastewater infrastructure by achieving more with every dollar spent and generating new economic development activities.

Ms. Stoner continued that some of the specific work OW is doing is related to these themes. For example, there is currently an effort on prioritization and integration focused on wastewater and stormwater management and CWA investments. There are often many different local and state entities involved in these efforts as well as different permitting mechanisms involved, which makes prioritization and integration a complex issue. The goal of the initiative is to get everyone in a community in agreement on what they should invest in. It is not about lowering water quality standards, or doing less; it is about spending every dollar better and doing things that are particularly important to that community. This involves analysis to identify the biggest problems, e.g., the sources of pollutant loadings, and the priorities for the community in terms of cleaning waterways or the integrity of the system. She stated that she had a Congressional hearing on this topic yesterday. Further, they anticipate stakeholder meetings across the country into early 2012 to talk about this effort. It is a joint effort with the Office of Enforcement and Compliance Assurance and OW to make sure they are working better together, not just around enforcement, but also having the flexibility of prioritizing these investments.

Ms. Stoner continued, stating that another thing they are engaged in is clarifying the scope of the CWA protections. It involves the two major Supreme Court cases in 2001 and 2006 and the definition of the Waters of the U.S. They posted the Guidance for public comments in the spring and received 230,000 comments. Most responses were asking to clarify definitions and many encouraged rule making instead of the guidance. They are pursuing that path by working with the U.S. ACE. Clarification could be provided on those waters that are jurisdictional and those that are not. They are doing outreach to various groups and conducting tribal consultation and federal meetings with local agencies. The impact on the groundwater is small (2.7% of the jurisdictional determinations would be positive), but it is important. If a portion of the waterway is not protected, it will be the headwaters. They think it is important, even though small. The Council may be hearing about this already.

Nutrient pollution continues to be a high priority. It is a situation in which they have a lot of work to do. In some areas of the U.S., the situation is getting worse. For example, there have been algal blooms of species they have not seen before. OW is really trying to

work with USDA and state partners to systematically approach this. Her memo last spring outlined their recommendations, including nutrient management plans, loading analysis, incentive programs, training, etc. It has generally been well received. The hard part is that there is never enough money. So they need to be smarter and look at a broad range of tools.

She commented on the work on the Chesapeake Bay and the lowering of the total maximum daily load (TMDL) through the plan implementation. There are more plans to be met at the state level which identify more specific needs. It is going well, but it takes time to clean up an estuary. All practices are in place by 2025 for the Bay to meet set standards.

Ms. Stoner also discussed work in Florida. They have set numerical nutrient criteria for inland waters and are working on criteria for coastal waters. They have been working closely with the state and have indicated to them that if they finish the criteria, they will back them. It has worked well, and they are preparing a package for the Florida legislature.

She also discussed recreational water criteria being developed for beaches and fresh water, as they relate to swimming. These will be out for public comment shortly. They have been out as a draft for scientific comment, and one of the big things is to validate the test methods. They want to test beach water and provide same-day results.

Ms. Stoner announced that Urban Waters Small Grants are out. They vary and target community-focused efforts to help revive water ways. They have about $3.5 million in the current Request for Proposals on the Urban Water Program. The Administrator developed the program, and she is very proud of it.

Finally, Ms. Stoner touched upon Green Infrastructure. They continue to view it as part of the whole picture. It is another way to spend dollars smart and get multiple benefits. Communities are turning stormwater, that once had been a problem, into a resource. The OW is working with communities and states. They are also drafting a stormwater rule that does not mandate Green Infrastructure but promotes its benefits.

Discussion after presentation:

Mr. Owen thanked Ms. Stoner for the update. It seems like a lot of focus is on the CWA and revitalizing water bodies as opposed to things associated with drinking water and protection of consumers of drinking water. He asked if most of the OW focused on the source water side of this.

Ms. Stoner responded no, but that she was under the impression that this was just what she was supposed to talk about.

Ms. Dougherty followed by stating she had already given the update on the drinking water programs.

Ms. Owen continued that he is always thinking about priorities, because there is only so much money in the bucket. When do you put those pieces together?

Ms. Stoner responded that the infrastructure part she talked about is definitely both. But the latter she thought they would be interested in. Total coliform, lead and copper, chlorate, she had hoped they already had been talking about these issues.

Ms. Weintraub wanted to mention some of the non-potable reuse initiatives. They are really pushing these efforts in San Francisco and working collaboratively with the city water utility and building divisions to work out a system that allows, promotes, and requires the reuse of water for new developments. This is also being done for their stormwater initiatives and single home residential uses. She noted that she will share some of their initiatives with the Council after the meeting.

Ms. Stoner asked that Ms. Weintraub please include her when she sends out this information.

Mr. Zarate-Bermudez commented that currently, there is a lot of interest about addressing nutrient issues in the nation's waters, and that this is a pressing issue with EPA. Some years ago he read a paper that suggested that focusing on biochemical oxygen demand-5 days (BOD_5), the carbonaceous-BOD, instead of BOD_7, the nitrogenous-BOD, does not help in comprehensively addressing nutrient issues. He asked if EPA would consider taking that into account.

Ms. Stoner responded that she can offer him her understanding, but she is not a scientist. You can have low dissolved oxygen (DO) for many different reasons, so it can be a result of excessive nutrients, but it can be of others as well. So, they encourage the development of nutrient criteria for nitrogen and phosphorus because the DO does not correlate exactly for them. In Florida, they are looking at identifying the levels of nutrients in healthy streams. While some disagree, they have done a tremendous job in collecting data. It is one of the reasons why it takes so long. At one point the Agency said they would have criteria by 2012. Some states have complete criteria and some states have criteria for some water bodies. By doing these criteria, they can do other things.

Ms. St. Martin asked if she could share the nexus between OW and power generation.

Ms. Stoner responded that that is a big issue. One of the things that they are doing is an evaluation of the value of water. Withdrawals for power generation are the biggest use of water in the U.S. There is a paper by Black and Veatch on electric utilities. The report is most concerned about water for cooling. They are certainly looking at it, but how they are most involved is trying to improve the energy efficiency of water and wastewater operations. There are various guides and manuals as well as technical assistance to reduce the amount of energy used by the water sector. They are working with ORD to develop a research agenda that will prioritize issues. It is a growing issue. There is also

hydraulic fracturing, which is a huge topic. Ms. Stoner asked Ms. St. Martin if there is something particular she wanted OW to look at.

Ms. St. Martin replied that water utilities have to have back-up power. Onsite generation has been having impacts on air quality. Where are they going to go with the need for self generation and air quality issues? She works with a group with an incinerator. Because of their need to meet energy demand during storm events, it becomes a security issue.

Ms. Stoner responded that wastewater generators have the benefit of having energy coming in, in the form of methane.

Ms. Taylor said she would like to comment on the water/energy nexus. Her organization has researched power plants and the thermal discharges of those plants and the withdrawals. Between 60 and 100 million gallons per day are evaporated downstream as a result of thermal discharges from those power plants in North Carolina. They submitted a complaint about inadequate and inconsistent regulation of thermal variances in North Carolina, to the Office of Inspector General, that resulted in a report confirming those concerns.

Regarding jobs and green infrastructure, Ms. Taylor continued by saying that several years before her first meeting with NDWAC, she had seen a publication on swales in Seattle and had a chance to talk with the city public utilities. Her organization started talking to water managers and homeowners in Durham, North Carolina, and they were really excited. Not only do these installations make their communities look better and improve water quality, they also create jobs. They have done some tinkering around the edges and have performed some calculations that found that there are reduced costs to cities. She asked if there were any thoughts on scaling up that work.

Ms. Stoner responded that EPA has a green infrastructure agenda. It is focused on partnerships and identifying barriers to green infrastructure. A lot of communities are ready to go, but there are barriers such as funding. They have to try to figure out how to put together different pots of money, from the U.S. Department of Housing and Urban Development (HUD), the Urban and Community Forestry Program of the USDA, and EPA. They are also trying to get local entities to work together. How well is this going to work, and will it produce the results they expect? They have very good data, but what happens when they scale up to meet a TMDL or combined sewer overflow (CSO) problem? That is when OW works with ORD and communities across the country to find the answer. Ms. Stoner asked that the Council please look at the green infrastructure agenda and the Partnership Program. She encouraged them to join. The partnership shares information, holds webinars, and helps to meet the demand for assistance.

Ms. Weintraub stated that yesterday, during discussion of the Coliform Rule, there was some talk about moving away from prioritizing enforcement of the Coliform Rule violation for public notification focusing on mitigation of the problem and management. She asked if Ms. Stoner could talk about the nexus.

Ms. Stoner stated that she can start, but others will have to help. Part of what they are trying to do is not just to notify about problems, but to fix them as well.

Ms. Barr followed by saying they had an advisory committee to help with revisions to the rule. The monitoring rule just has notification. ASDWA conducted a survey on how many problems still exist years later. Monitoring still requires notification, but they are drafting a find-and-fix provision. A violation must be fixed, if it is a sanitary defect.

Ms. Weintraub responded that it is not really a de-emphasizing, but a shifting.

Ms. Barr stated it is a more proactive approach.

Ms. Massey commented on Ms. Stoner's discussion on the definition of Waters of the U.S. She stated that if it weren't for state regulations, there would be a large amount that would not fall under regulations. Ms. Massey asked if that was given any thought as OW looked at the definition.

Ms. Stoner responded that the regulatory program they are working on does not cover that. They do not have the authority.

Ms. Godreau asked about source water protection as it relates to the CWA and utilities, particularly transfer treatment costs from upstream polluters. They talked about hydraulic fracturing. She said she did not realize bromine was not regulated. There are industries with scrubbers for bromine for air quality. They have done all the sampling upstream. She thinks the answer is to require monitoring and permitting of wells. She is not hearing any authority under the CWA.

Ms. Stoner responded that it is dependent on the water quality standard.

Ms. Godreau continued to ask why not bromine.

Ms. Binetti offered that it is a recently identified issue. A water quality criterion is needed.

Ms Stoner stated that under the CWA, if the federal government does not do the work, the states would pick it up. The criteria needs to be documented. Typically, EPA will do this for the states to use. She said, however, a state can develop a standard without criteria.

COUNCIL DELIBERATIONS

Olga Morales, NDWAC Chair, Rural Development Specialist-Environmental, RCAP

Ms. Dougherty asked if anyone had additional discussion from yesterday. There were still some discussions on lead that could be done informally.

Ms. Taylor stated that the Council had intended to follow up.

Mr. Owen stated that with regard to hydraulic fracturing, there was a question that was asked concerning how to improve the communication and dialogue between water interests and energy interests. He asked if they were looking to the Council for thoughts on this issue.

Ann Codrington said that is how she stated it. She asked how they talk within the gas industry because there is a gap on how they view the activity. Is there an approach that might work? It is a broad question.

Mr. Owen asked if they wanted to have that discussion or input.

Ms. Morales stated that it requires deliberation.

Ms. Weintraub said she would second that. Since they have two council members leaving, she would like to have them as part of their discussion today.

Ms. Morales said they would then reconvene after lunch.

Mr. Owen asked how long it would last and if they wanted to wait until after lunch or if it was brief they could discuss now.

Ms. Sparrow suggested that they poll who will comment on the discussion.

Ms. Morales said they would go around the room and say how much more each member might have to say on the topic.

Ms. Sparrow said she did not have a lot to say.

Mr. Saddler said he had no comment.

Ms. Kennedy said she did not mind staying and adding to the discussion. There is the local issue and the overarching federal issue.

Ms. Weintraub responded that she is not sure what she had to add, but on a broad level there is always something to provide from their various experiences and communication issues and ways of collaborating on disparate interests. They should continue to talk about this in the future.

Mr. Owen stated that they heard through the presentations what EPA is doing, and a lot of dialogue is at the local level with stakeholders. He is not really sure how to respond to EPA to improve communication. What he heard is a conversation that revolved around the questions of EPA's role and how EPA can have input given certain restriction in authority. There is a lot of interest in this issue, including the media, and it is a long term

issue. Mr. Owen asked if NDWAC wanted to form a sub group. There are a lot of moving parts and asked how can NDWAC provide the best input.

Mr. Woolard stated that the basic question is communication. He hoped that based on what is happening at EPA and other federal agencies, the Council might want to encourage discussion with the professional organizations, asking them what the risks are to public water systems and how to manage them. They have only gotten a small taste of the depth of these issues.

Ms. Taylor stated that her organization has spent a lot of time evaluating the science and looking at industry websites and press releases. Her reaction is that the Council has a responsibility to call on the Agency to improve communication with stakeholders that are impacted by the industry. She was hoping the Council would be able to provide an even-handed direction. Mr. Owen has offered more of an even-handed approach to the issue than was originally stated in Ms. Codrington's presentation. There is still a large disparity in the amount of power the industry has versus individual landowners, local, state or federal government. The Agency, by contributing to good science through the larger hydraulic fracturing impacts on water study and studies like the Pavilion, Wyoming study, is communicating that this is going to be an important issue to the public.

Ms. St. Martin stated that she is interested in the fact that there is not a lot of science around what they do not know. It would be helpful if EPA could help water and wastewater utilities develop tools on how they should prepare. This is going to continue, and utilities need to be prepared as business units, regulators, and providers.

Mr. Zarate-Bermudez stated that he did not have any comments. He needed to learn more about what was happening. However, he could facilitate the connection with the CDC group working on hydraulic fracturing.

Ms. Godreau commented that there are things to talk about after lunch. She noted that there are industry commercials, and a lot of misinformation is provided to the public.

Ms. Massey stated that they needed to help the Council members understand that there are others involved as well as their role in responsibility. She asked that EPA provide a summary of their approach. In her state, they do not allow the use of diesel fuel. One of the questions is what the definition of diesel fuel is. It would be helpful to have that identified.

Mr. Morales stated that the big question is the challenge of improving communication, but who is the target. How do they educate the public utilities? How do they need to be prepared?

Mr. Saddler agreed that this was a topic to discuss after lunch.

Discussion continued after lunch:

Ms. Morales reopened the meeting by stating that the question they left open for deliberation was related to improved communication between water utilities and stakeholders.

Mr. Owen thanked everyone for coming back, but, in listening to the discussion they had this morning, it seemed to him that EPA is in a situation with limited statutory authority. How can NDWAC be helpful in order to allow EPA to be as effective as possible when participating in this hydraulic fracturing arena given EPA's lack of statutory authority? One of the first things he was involved with in the Council was carbon sequestration and there were recommendations on well construction. He is just trying to think about the areas. Ms. Godreau brought up downstream water quality. How does EPA engage in the subsurface aquifers? What is EPA's control of underground sources of drinking water? And, given that, how does EPA participate in the stakeholder dialogue?

Ms. Morales thanked Mr. Owen, stating that brings it together. They have to take into account the statutory limitations. Having said that, how does the Council want to advise? She asked for any ideas.

Ms. Weintraub stated that she did not think they would come to a place today to offer recommendations, but what might be useful for them, is to identify some goals for what they would like to get to. For example, goals might be identifying the stakeholders that have these differing perspectives that are important for EPA to be communicating with. With her experience with chloramine, a lot of the drinking water utilities were looking to EPA to provide the authoritative voice and to make some definitive statements about the risks to human health. Regarding the citizenry, the utilities are interested in communicating something that has clarity about what the potential risks are, the known risks, the unknown risks, and transparency. One recommendation that she would like to consider would be to ask EPA to provide that kind of clarity, but that may already exist. There may already be some FAQ factsheets.

Ms Codrington asked if Ms. Weintraub could clarify what it is she would like.

Ms. Weintraub stated that with chloramines, there was a directed communication piece put on the web that had different layers of communication, from the simple to the very high level, on what the health implications were, as defined by EPA and research.

Ms. Dougherty stated that they took the questions received and answered them from a risk communication standpoint. She said that they had a series of questions at the time for which Ms. Weintraub is referring. Without first having the questions posed, she asked if they could do that same type of questions and answers.

Ms. Weintraub stated that she did not know the answer to that. EPA was in a similar place when they first confronted the chloramines questions. Once it finally did come out, it became the go-to place for local questions.

Ms. Barr stated that they spent a lot of time creating that piece. When all the scientific questions have not come out, it makes it difficult and takes a long time to put together. She was not trying to discourage the Council, but it takes time. There needs to be a lot of discussion to answer questions in a way that is understood by the general public.

Mr. Saddler stated that with regard to transparency, EPA is charged by Congress to do a variety of things, such as gather data and put together reports, and they do not have the statuary authority to move on it. However, they can make the information available and let the member organizations, which is the lion's share of the water community, know it is there. The point is to get the information out to the people that have a voice, who can get the attention of a Senator and Congressman through a letter. EPA has the results of the reports and can share with these agencies and organizations.

Ms. Taylor referenced that Ms. Codrington stated there was methane in drinking water, and there was some authority to regulate it under the SDWA. What did she mean by that?

Ms. Dougherty stated that EPA has authority if there is an endangerment to a drinking water source. If that fluid gets disposed, but causes other things that endanger an underground drinking source, EPA can take action against the injector, though it is not always easy to do. If there were no gas in people's wells prior to the injection, and then after that there is, you can make a connection and do something. However, it is very difficult to make the connection, particularly if there are no baseline data. People who live in those areas of the country may have gas in their water.

Ms. Codrington stated that one of the concerns is that pressure increases cause saline water to move into a drinking water source and that would be an impact and endangerment to a drinking water source.

Ms. Taylor thanked her saying that she wanted to be sure. She was not aware of SDWA regulating contaminants that are hazardous other than as direct drinking water constituents. She has been asking scientists at Duke University who have been doing the methane study in Pennsylvania and New York if there are studies that show that these contaminants are not a drinking water hazard. Further, can they consider regulating shale gases under the SDWA? She asked if EPA considered regulating contaminants not because they are a drinking water hazard but for other reasons. Are there examples and could the Council make that recommendation?

Ms. Codrington stated that for methane in drinking water, it is important to remember that it is very volatile, so it is hard to get a sample. In addition, in talking with the drinking water program, she has not found any drinking water ingestion data for methane.

Ms. Dougherty stated that when EPA regulates contamination in drinking water, they look at all the types of exposure someone might have. For example, for the volatile contaminants, they consider showering, washing hands, etc. In drinking water, there is as much exposure from non-drinking routes as through ingestion. To do a national drinking

water standard, they have to meet the criteria she showed yesterday; it has to have an adverse impact that occurs at a frequency in public drinking water to be a public health concern. The second aspect might be hard to document.

Ms. Taylor stated that this is being discussed in the scientific community, specifically the route of exposure. People are looking for tools to strengthen the regulatory approach.

Ms. Godreau stated that something that lays out all the issues and concerns would be helpful. There needs to be some compilation to know what the questions are, where EPA has no authority, etc. They have all seen the commercials, and she feels it is misinformation. She is presuming that EPA would be constrained to counterpoint something out of their regulatory point, but that different format would be a resource for all the facts. There is no other regulatory authority that can do that.

Ms. Codrington stated that one of the things that has come out in the conversation is there are other agencies with an interest, including DOE; Department of Interior (DOI); USDA; and folks that deal with public lands. There is something for EPA, but the roles of other agencies need to be thought about also.

Ms. Morales stated that maybe the recommendation is for the agencies to come together and to create a summary of collective information that states the facts.

Ms. Dougherty stated that the study plan lays out how the water user is impacted or could be impacted by hydraulic fracturing. It lays out the questions of what EPA knows and what they do not know. It may not be in the form the Council is talking about, but it is what the agency has put together with what they have.

Ms. Godreau asked if it will include an analysis of the regulatory framework.

Ms. Dougherty stated, no; it is scientifically based.

Ms. Godreau stated that if they are thinking about what they could be asked, there are concerns where there is no regulatory authority. This would be good questions for people to see, if there is a catastrophe down the road.

Ms. Codrington stated that on page 13 of her presentation showing ORD, one thing it does not get into is human health risk.

Ms. Weintraub stated that that leads into her comment. On the one hand, they can imply that the MCL is exceeded, so she thinks it is probably okay that it does not get explicitly in there. What do they think the risk is to drinking water? Does CDC have a role here? Can they think of parallel analysis issues where CDC has weighed in?

Mr. Zarate-Bermudez stated that there is a group in the Agency for Toxic Substances and Disease Registry (ATSDR) working on hydraulic fracturing issues. He stated that he

knows the person who leads the efforts, and that he could contact that person for more information.

Ms. Dougherty stated that only Regions 3 and 8 have dealt with this issue and talked with ATSDR.

Ms. Weintraub stated that there are always agencies that have different roles. Agencies have specific roles, but there needs to be some way of integrating the respective parties.

Mr. Zarate-Bermudez stated that he agreed with Ms. Weintraub. He asked Ms. Codrington and Ms. Binetti if they discussed health issues. If there are issues related to public health, it would be good to involve NCEH.

Ms. Binetti stated that consultation with ATSDR has occurred on more specific issues.

Mr. Zarate-Bermudez responded that CDC would agree to work with EPA in enhancing communication in this field.

Ms. Taylor asserted that she wanted to reinforce the point that Ms. Dougherty was making. The study plan has been up for review by the Science Advisory Board (SAB), which is a strong body, free of conflicts of interest, and public comment. She feels that is a real public statement on the party of the agency considering the scope that was under consideration that there has been so much communication about it.

Ms. Dougherty stated that EPA cannot speak for the industry; however, they can ensure transparency through quality assurance plans, and how they take samples.

Ms. Godreau stated that she appreciates EPA's efforts, and realizes it is an uphill battle to get industry disclosure of chemical contaminants.

Ms. Codrington stated that she did not believe she made any note of a requirement for disclosure. In some states, such as Colorado, they have updated their regulations to include disclosure provisions. There is some sort of provision that they will be protecting trade secrets. States define disclosure in different ways. Some use Material Safety Data Sheets (MSDSs) or contaminant concentrations. The website cosponsored by the GWPC and the IOGCC provides a clearinghouse where individual companies can report what it is they are injecting. It is voluntary and not completely populated. But GWPC and IOGCC have tried to strengthen it. Some states are thinking about using it to meet their individual requirements.

Ms. Dougherty stated that they want to ensure that the database can accommodate what the states are requiring.

Ms. Godreau asked if there is a statute to make the industries disclose what they are using.

Ms. Codrington stated that EPA received a petition, under the TSCA, to consider requesting information from the industry to do some testing and other provisions. She could not provide the details at this point.

Ms. Godreau asked if the trade secret precluded them from what would otherwise be required.

Ms. Dougherty stated that the trade secret issue is one for the research.

Ms. Codrington stated that there are provisions to protect trade secrets at the federal and state levels, separate from the statutory act. For example, there is nothing under the CWA or SDWA that prevents permitters from asking what is being injected in that well. But whether that information gets on the website is a different issue.

Ms. Godreau offered an example. What would happen if they took the wastewater off-site and sprayed it along the highway? She asked if there was a regulation that controlled the activity.

Ms. Codrington stated that U.S. Department of Transportation (USDOT) regulates hazardous materials, and they have to have manifests; but it is not considered a hazardous substance. She did not think USDOT could say they can spray it on the road.

Ms. Godreau asked Ms. Codrington if she knew if chemicals were being evaluated for whether they were hazardous.

Ms. Codrington responded that EPA has been asked to look at what is hazardous as part of the study. Further, EPA asked for information about what is in the chemicals being injected. But the industry will not share.

Ms. Dougherty stated that the companies provide them voluntarily, but almost everyone claims confidentiality.

Ms. Godreau asked if there is pure immunity to someone who wants to discharge into the environment, and there is no regulatory oversight.

Ms. Binetti responded that if there is a release, they are required to notify the National Emergency Response Center.

Ms. Codrington stated that there is no question that there are a number of exemptions to the oil and gas industry. Typically, states are responsible for the oil and gas industry.

Mr. Zarate-Bermudez asked who the oil and gas stakeholders are. Do they have a list?

Ms. Codrington replied that she would not call it complete, but they have had a number of public meetings over the past two years. However, they do not release that information.

Ms. Dougherty stated that the list is not just those in the industries; it is a mix.

Ms. Morales stated that she would take two more comments then wrap up the meeting.

Mr. Woolard commented that it seems to him that the NDWAC would like EPA to investigate the impacts of this industry on drinking water, which they are already in the process of doing. In his opinion, it is a well designed study. It is a good first step. The second part of what they are asking of EPA is to communicate those risks to utilities. Finally, if there is a regulatory gap, that is something to look at in the future.

Mr. Saddler stated that he thinks what Ms. Godreau is referring to can be handled at the state level for permitting a drilling well. This is where communication comes in to deal with the permitting, and it will be challenged in court because of confidentiality. EPA should work on the environmental side with that permitting agency, and they may have better luck.

Ms. Morales stated that she thinks they are not ready to make a recommendation and asked EPA to continue to update the NDWAC on these issues to help them make decisions and recommendations. Consensus is that they are headed in the right direction; a lot of the responsibility is on the states; and they cannot take that away. She suggested that they wrap up the discussion.

Ms. Weintraub stated that it is implicit that this needs to be a continuing agenda item.

The Council then broke for an informal discussion on the partial lead line replacement rule and draft letter summarizing their recommendations to EPA.

CLOSING REMARKS AND AGENDA TOPICS FOR NEXT MEETING

Ms. Morales asked if there were any closing remarks or agenda items for the next meeting.

Mr. Owen asked that they receive an update on the EPA budget and hydraulic fracturing.

Ms. Dougherty responded that they will send the Council something on the budget before the next meeting. Additionally, for the next meeting, they will either have the final guidance on hydraulic fracturing or the final guidance on its permitting.

Ms. Morales asked if there were any other agenda items.

Ms. Godreau stated that she would be interested in having some type of regulatory framework that looks at hydraulic fracturing and federal laws that regulate this practice.

Ms. Dougherty stated that there has been some work done, and with states changing their oil and gas rules so quickly, it is hard to keep up.

Ms. St. Martin stated the presentation by Ms. Codrington was very interesting showing the links between the CWA and SDWA.

Ms. Weintraub stated that UCMR3 would be published in March, and there might be something on that for the next agenda.

Ms. Dougherty stated that they usually meet in May and November. Having a meeting late in the year is difficult. She would prefer to get back on the spring-fall schedule. That would mean that they would be meeting again before six months, if the Council was OK with that.

Ms. Weintraub pointed out that appointments were made in June, and, therefore, that may impact the regular schedule.

Ms. Dougherty responded that the office by which they do appointments had changed their strategy. She said that Ms. Kelly is only on detail in her office until Monday, when she returns to Ms. Codrington's division. Therefore, she is transitioning out of being DFO. On top of that, Mr. Bergman finishes his detail as Acting Deputy Director tomorrow. A new Deputy Director, who is completely new to the federal government, will be on board starting next Monday.

Ms. Morales adjourned the meeting by stating if there are no other agenda items requests she would like to thank them all for the great discussion. She also thanked Ms. Kelly and Mr. Bergman.