

**NATIONAL DRINKING WATER ADVISORY COUNCIL**

**EXECUTIVE SUMMARY**

**NOVEMBER 11 – 13, 2009**

**PHILADELPHIA MARRIOTT DOWNTOWN**

**1201 MARKET STREET**

**PHILADELPHIA, PA 19107**

**PREPARED FOR:**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**OFFICE OF GROUND WATER AND DRINKING WATER**

**1201 CONSTITUTION AVENUE, NW**

**WASHINGTON, DC 20004**

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

Gregg Grunenfelder, Chair, Assistant Secretary, Division of Environmental Health, Washington State Department of Health, Olympia, WA

Nancy A. Beardsley, Director, State of Maine Division of Environmental Health, Maine CDC, Department of Health and Human Services, Augusta, ME

Jeff Cooley, Utilities Division Operations Manager, City of Vacaville, Vacaville, CA

Dennis Diemer, General Manager, East Bay Municipal Utility District, Oakland, CA

Timothy Kite, Water Superintendent, Long Creek Township Water Department, Decatur, IL

Olga Morales-Sanchez, Rural Development Specialist, Rural Community Assistance Corporation, Dona Ana, NM

Jennifer B. Nuzzo, Associate, Center for Biosecurity, University of Pittsburgh Medical Center, Baltimore, MD

Douglas M. Owen, Vice President and Chief Technology Officer, Malcolm Pirnie, Inc., White Plains, NY

David Saddler, Manager, Water/Wastewater and Propane Department, Tohono O'odham Utility Authority, Sells, AZ

Duane Smith, Executive Director, Oklahoma Water Resources Board, Oklahoma City, OK

Lisa Sparrow, Chief Operating Officer, Utilities, Inc., Northbrook, IL

Carl Stephani, Executive Director, Central Connecticut Regional Planning Agency, Unionville, CT

Hope Taylor, Executive Director, Clean Water for North Carolina, Durham, NC

Bob Vincent, Assistant Bureau Chief Environmental Health Division, Florida Dept of Health, Tallahassee, FL

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

## **U.S. Environmental Protection Agency (EPA) Attendees**

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

Tom Carpenter, OGWDW

Nanci Gelb, Deputy Director, OGWDW

Steve Heare, Drinking Water Protection Division (DWPD), OGWDW

Jyotsna Jagai, Office of Research and Development (ORD), U.S. EPA

Audrey Levine, ORD

David Travers, Director, Water Security Division, OGWDW

Jacquelyn Springer, OGWDW

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

Veronica Blette, Chief, WaterSense, U.S. EPA

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

Dr. Max A. Zarate-Bermudez, Division of Emergency and Environmental Health Services, National Center for Environmental Health, Centers for Disease Control and Prevention (CDC), Atlanta, GA

## **Science Advisory Board (SAB) Liaison**

Dr. Jeffrey Griffiths, Director of Global Health, Tufts University School of Medicine, Boston, MA

**Speakers and Members of the Public**

Kelly Anderson, Philadelphia Water Department

Jeanne Bailey, Fairfax Water

Vicky Binetti, EPA Region 3

Jonathan Colvin, Cincinnati Drug and Poison Information Center

Frederika Deaue, Water for Life Project

Hayley Farr, The Cadmus Group, Inc.

Vanessa Leiby, The Cadmus Group, Inc.

Adam Lovell, The Cadmus Group, Inc.

Mike Keegan, National Rural Water Association (NRWA)

Howard Neukrug, Philadelphia Water Department

Alexa Obolensky, Philadelphia Water Department

Lisa Ragain, Aqua Vitae

Alan Roberson, American Water Works Association (AWWA)

Jim Taft, Association of State Drinking Water Administrators (ASDWA)

Ed Thomas, NRWA

Jennie Ward-Robinson, Institute for Public Health and Water Research (IPWR)

## **National Drinking Water Advisory Council**

### **November 2009 Meeting**

#### **Executive Summary**

The November 2009 meeting of the National Drinking Water Advisory Council (NDWAC), in Philadelphia, Pennsylvania focused on research efforts related to drinking water at the utility, university, state, and federal levels. The NDWAC meeting was held after the American Public Health Association's (APHA) annual meeting, and as a result featured presentations from organizations focusing on water and public health issues, including the Institute for Public Health and Water Research (IPWR), the Cincinnati Drug and Poison Information Center (DPIC), and the Philadelphia Water Department. The presentations addressed critical issues such as outreach and communication with the public, collaboration with states and local organizations on source water protection, water security as it relates to health agencies, and emerging contaminants in drinking water.

EPA also provided updates on its Climate Ready Water Utilities and water security efforts, the Office of Research and Development's (ORD) Research Agenda and Multi-year Plan, activity on nutrients and geologic sequestration (GS), and Standards and Risk Management Division (SRMD) regulatory matters.

The meeting did not feature any consultation issues – a change from previous meetings.

#### **FOLLOW UP SINCE LAST MEETING**

EPA provided updates on the base and American Reinvestment and Recovery Act (ARRA) programs of Drinking Water State Revolving Fund (DWSRF). As part of ARRA, the DWSRF and Clean Water State Revolving Fund (CWSRF) received \$2 billion and \$4 billion, respectively. The requirements for the ARRA funds differed from the base program in that all funds must be under contract or construction by February 17, 2010, twenty percent of the funds must be used for green projects (e.g., energy and water efficiency), and projects must comply with the Buy American provision and the Davis-Bacon Act. The goals of the ARRA funds were to create jobs, to provide for disadvantaged communities, and to implement green projects.

To meet these deadlines and requirements, OGWDW has developed guidance and a database reporting system to capture project level data (e.g., federal grant awards, assistance agreements awarded, projects under contract, projects under construction, and payments). OGWDW estimates that there will be 1,425 ARRA DWSRF projects under contract by February 17, 2010. Many states expect that many contracts will be executed in December 2009, though outlays will be slower since they will follow the pace of construction. In total, the DWSRF program has now provided approximately \$16 billion in assistance, and has approximately \$18 billion available. Looking into the future, Congress has appropriated \$1.37 billion to the DWSRF in 2010. This appropriation includes the twenty percent green project and Davis-Bacon requirements, as well as a thirty percent floor for subsidies.

NDWAC inquired about certain provisions of the ARRA funds, including Davis-Bacon, and whether the provisions applied to all funds in the DWSRF program, or just to the ARRA funds and the 2010 appropriation. The United States (U.S.) Environmental Protection Agency (EPA) is still trying to interpret Congress' actions, but interpreted that the thirty percent subsidy requirement will provide grants to disadvantaged communities or to communities otherwise not able to afford SRF loans.

NDWAC also applauded EPA's efforts in providing ARRA-specific guidance to the regions and states, and the twenty percent green requirement of the ARRA funds; but it encouraged EPA to continue working with states to ensure that the green requirement will not take away from other public health-based projects. The Council felt that while the sustainability and long term viability of systems is important, SRF projects solely for energy or water efficiency improvements stray from the program's public health mission.

Another Council concern was the pressure put on states to prioritize shovel-ready projects, to create jobs. It was stated that many shovel-ready projects in one state did not meet the real infrastructure needs within the water sector over the next five to ten years. EPA noted that the shovel-ready contingency did not apply to the base 2009 funds or the new 2010 appropriation, which will be used to meet long-term infrastructure needs. The up-coming SRF re-authorization (\$3.5 billion over five years) adds priority criteria for asset management and sustainability, and other SRF priorities include consideration for small systems, capacity development, and sustainability in disadvantaged communities.

It was noted that the Web site [www.recovery.gov](http://www.recovery.gov) acts as the public face for recovery efforts. States are required to report progress (e.g., jobs created, public health outcomes) on a quarterly basis.

### **APHA PERSPECTIVE: CONNECTING THE PUBLIC TO THEIR WATER**

A representative from the Institute for Public Health and Water Research (IPWR), an organization that conducts international and domestic projects related to drinking water, presented on the organization's outreach and education work, which is grounded on scientific evidence. IPWR is committed to sustainable access to adequate quality drinking water world-wide; this fundamental value crosses the organization's vision, mission, and operating principles.

Currently the organization funds projects and works with partners across the world, however its most recent project is in Trinidad and Tobago. Specific challenges to working in developing countries, such as Trinidad and Tobago, include cultural and social behavioral changes, intense precipitation, the use of non-covered tanks, and low literacy rates. IPWR has learned how to make on-the-ground connections (e.g., through sports stars, politicians, and community champions), and to work with universities and environmental agencies to build capacity. These efforts have helped bring resources and behavioral changes to the communities. Education is particularly important because it gives rise to ownership and conservation, as well as a shared responsibility for the water supply.

NDWAC encouraged IPWR to consider the National Rural Water Association's circuit rider model. Furthermore, the Council acknowledged that it is difficult to educate the public on the importance of safe drinking water and the measures taken in the industry to ensure safe drinking water; programs like those established by IPWR are essential to bridge the educational gap in communities.

One council member noted that the U.S. can learn from developing countries, but also can send a message to developing countries that infrastructure requires long-term sustainability.

### **UPDATE ON CLIMATE READY WATER UTILITIES WORK GROUP**

A representative from OGWDW's Water Security Division (WSD), presented on the status of the Climate Ready Water Utilities (CRWU) Work Group that was created after the May 2009 NDWAC meeting in Seattle, Washington. Over the last few months, candidates were identified and nominated, and the working group was formed. The CRWU Work Group includes 21 representatives from utilities, states, and organizations, as well as three NDWAC members. The group's kick-off conference call and first in-person meeting will be held in November and December 2009, respectively. The effort will close by September 2010, and a final report

will be produced by the end of 2010, reviewed by NDWAC, and forwarded to the EPA Administrator with recommendations.

Furthermore, the WSD is developing a climate change assessment tool that focuses on the adaptation and assessment of climate change impacts for water utilities. The tool will downscale temperature and precipitation data based on the water utility's specific location. The tool was designed by a broad work group of technical experts, software developers, and agency leaders and may soon be pilot tested.

The Council encouraged the Work Group to build on research and conclusions identify by other research organizations and to work with other federal agencies. The members also noted that the Work Group should consider response plans and evaluate the risks for water systems for events tied to climate change (e.g., sea level rise, increased intensity from hurricanes, temperature change).

### **EPA ACTIVITIES ON ACTIVE AND EFFECTIVE SECURITY**

EPA is working to help communities, and in particular critical users of water, understand the consequences of a disruption in water service. The NDWAC Water Security Work Group and the Department of Homeland Security identified 14 features of an active and effective water security program as well as best practices (e.g., developing partnerships with law enforcement and fire departments in the community). Two pilots of this water security program were conducted in Seattle, Washington and in Chicago, Illinois. The Chicago pilot exposed the inadequacy of corporations' contingency plans, and also underscored the need for water in a large network of hospitals and other medical facilities (e.g., for production of medical devices and to achieve disinfection needs). As a result of these pilots, it was concluded that the water community must engage with the health care community and that emergency response plans must expand from a focus on terrorism to include all types of hazards.

NDWAC encouraged EPA to share these findings with the entire water utility industry. To do this, the WSD is developing a guidebook, including letters, case studies, and workshop materials for community-based water resiliency. The division has also developed a hazard consequence management plan that provides an activity checklist for preparing for an emergency. The plan features eighteen hazards, ranging from the pandemic flu to a cyber attack, weapons of mass destruction, terrorism, power loss, earthquakes, and floods.

A NDWAC member brought up the Water Security Act and the revisions to the Chemical Facility Anti-terrorism Standards (CFATS). EPA noted that two bills in Congress could transform the water security program from a voluntary program into a mandatory, regulatory program. The regulation would cover drinking water systems serving more than 3,300 people and wastewater systems treating more than 2.5 million gallons per day (MGD). The systems would be required to prepare a vulnerability assessment and address the vulnerabilities and implement different performance standards. The Council suggested that the WSD offer an education program for the Department of Homeland Security on water systems.

### **REGIONAL PERSPECTIVE: COLLABORATING WITH STATES AND OTHER DECISION MAKERS**

*Vicky Binetti – Associate Director, Drinking Water and Source Water Protection, EPA Region 3*

EPA Region 3, presented on the region's work with three partners in the Mid-Atlantic states:

- The Source Water Collaborative (SWC) is a national effort to protect water resources by focusing on the connection between land use and water quality. SWC was formed in 2006 and its work began at the local level, to minimize and mitigate contamination risks, to control existing risks, to implement smart growth

techniques, and to practice water resource planning. SWC's Web site ([www.protectdrinkingwater.org](http://www.protectdrinkingwater.org)) features products developed by the collaborative, informational resources, and contact information for key individuals in states. Products include a planner's guide for incorporating drinking water protection into community planning.

- The Schuylkill Action Network (SAN) is a source water protection group that was established for the Schuylkill River. The SAN has received grants to manage acid mine training, and for riparian buffers, cattle crossings, farm conservation plans, and campus storm water projects.
- The Potomac Watershed Partnership includes 19 members including water utilities, EPA, and the United States Geological Survey (USGS). The Partnership runs a monitoring and early warning system, and also has an Emergency Response Work Group.

EPA Region 3 also faces many issues related to tapping the Marcellus Shale, a deep reservoir of natural gas beneath many states in the region. Hydrofracturing, a technique that uses waterborne particles to split the shale and increase the area into which the gas can flow and be recovered, will be used to recover natural gas. This technique requires a significant amount of water use (four to five million gallons per well) and may lead to water contamination. Public concern over natural gas drilling is mixed. Though the projects have high financial and environmental costs, the target drilling areas are located in impoverished communities that could benefit financially from this effort.

#### **DAY 2** (November 12<sup>th</sup>)

### **TOXICOSURVEILLANCE OF PUBLIC DRINKING WATER: A POISON CONTROL PERSPECTIVE**

A representative of the Cincinnati Drug and Poison Information Center (DPIC) presented on the activities of regional poison control centers. Sixty poison centers serve the U.S. population, staffed by medical specialists such as pharmacists, toxicologists, paramedics, physicians, and nurses. The Cincinnati DPIC, in addition to fielding about 600 calls per day, has completed a water security pilot study to identify and monitor distribution and patterns of reported symptoms and contaminants related to drinking water. Between June 2007 and November 2009, the Center was able to identify a few cases of water contamination. The nationwide water surveillance method is efficient and inexpensive, and could be achieved through cooperative monitoring by all poison control centers.

NDWAC suggested that in the future poison control centers coordinate with the CDC regarding methods and results. The Council also encouraged the Cincinnati DPIC and other poison centers to conduct follow-up investigations of water contamination occurrence, since the data gathered from poison centers may be more reliable if the centers are able to conduct follow-up investigations in the event of a trigger.

### **APHA PERSPECTIVES: TRACKING SOURCES OF WATERBORNE DISEASE IN THE WATERSHED**

An ORD staff member presented diarrheal disease data and conclusions generated during her PhD research at Tufts University. Most diarrheal diseases are caused by unsafe water supplies in both developing and developed countries. A seasonal pattern of cases of diarrheal disease has been identified, and this pattern indicates the existence of dominant environmental factors. The research focused on the Ohio and Mississippi Rivers and cities that used surface water for drinking water supplies. Using Medicare and Medicaid data and river discharge data, the study found that peak flow was not discernibly correlated with peak hospitalization rates. However, there were strong seasonal trends for ill-defined gastrointestinal (GI) infections and GI

symptoms, and a relationship was identified between GI illness and river discharge. Land use factors may have had significant effects on this data.

The Council inquired about patterns of infection for elderly patients, monitoring conducted by water systems, and the lifespan of pathogens in water sources.

### **EPA DRINKING WATER RESEARCH PROGRAM**

EPA's Office of Research and Development (ORD) has 1,911 employees and a budget of approximately \$587 million. ORD is responsible to all EPA program offices and regional offices, and there is collaboration between the offices on many programs. ORD research is conducted in lab units and each EPA region has an ORD science liaison and a regional research program. ORD organizes its work according to research needs and priorities. The annual budget for the ORD Drinking Water Program is \$47 million; the program funds about 180 staff in various offices. The water program focuses on ecological and human issues, and there is also a program on pesticides and toxics. The focal point for the program is to encourage public health outcomes.

NDWAC was concerned that the \$47 million budget for the Drinking Water Program was minimal when compared to the ORD drinking water research agenda, especially because the overall cost of individual studies can be quite large. EPA noted that that much of the funding for research supports EPA Goal 4: Safe Communities and Healthy Ecosystems. The Council asked for clarification on how ORD sets strategic priority areas and specific research questions. EPA stated that each ORD lab has a different method for developing research and that ORD also coordinates with OGWDW, which identifies research needs through the CCL.

The Council also inquired about ORD's ability to research an emerging issue, and if it had the flexibility to conduct research in-house or direct extramural funds for emerging issues. EPA explained that there is greater flexibility if an emerging issue is address by a Congressional appropriation. If an emerging issue is identified through a directive, the resources will be diverted from other research areas. NDWAC also commented that ORD's research program is impressive, but that there is a disconnect between ORD's research and the implementation and communication of the research at the local level.

### **PUBLIC PARTICIPATION**

There were no public comments.

### **EPA ACTIVITIES ON NUTRIENTS: NUTRIENTS INNOVATION TASK GROUP**

EPA's Nutrients Innovation Task Group completed a report that includes five case studies, innovative approaches to address nutrient loading, an analysis of cost effectiveness, and an accountability fact sheet with thirty examples. The report also includes a memo to the EPA Administrator presenting the findings. The effects of nutrients on water quality are widespread in 49 states and one third of streams, and many miles of coastline, are impaired. Urban storm water is a major source of nutrient loading, as are livestock production, atmospheric deposition, confined animal feeding operations (CAFOs), and row crops.

Solutions can include a full implementation of point source water quality tools, such as the development of water quality standards, total maximum daily loads (TMDLs), written limits in operating permits, and joint accountability between point and non-point sources. There is also an emphasis on incentives and innovations such as trading.

NDWAC suggested that nutrient loading issue is a win-win opportunity to link Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) objectives and goals, as there is a significant drinking water component that could bring new public involvement to solve the problem. One council member thought that traditional water regulations, TMDLs, and classical approaches were not sufficient, but that a technology-based solution may help solve the nutrient loading problem.

### **PHILADELPHIA WATER UTILITY UPDATE – GREEN CITY, CLEAN WATER**

The director of Philadelphia's Drinking Water Office of Watersheds presented on Philadelphia's long-term control plan update, a \$1.6 billion, 20-year plan that proposes to keep water out of the sewer system rather than increasing system capacity and to restore and protect all urban streams by greening one third of the city. There are several challenges: the costs are based upon a doubling of water and sewer rates that exceed affordability for customers, Philadelphia has no control over upstream activities that affect its water quality, and the impact on the drinking water system will be negligible. Philadelphia's population has dropped by half a million people in fifty years, and its citizens are paying for water infrastructure designed for 2.5 million customers, not 1.5 million. While there are many triple-bottom-line benefits to reducing storm water runoff and investing in green infrastructure, the utility is looking for an evolution, not a revolution.

The Council commented that this comprehensive, innovative approach could be a perfect target for ARRA funding. However, the City noted that ARRA funds have been allocated to the redevelopment authority, and it is difficult to coordinate with the authority to build new communities using green infrastructure.

### **CITY OF PHILADELPHIA SOURCE WATER PROTECTION PROGRAM**

A Philadelphia Water Department staff member presented on source water protection efforts in the City of Philadelphia. The City derives all of its drinking water from two sources, the Delaware and Schuylkill Rivers, and operates three drinking water treatment plants that treat 560 MGD. Philadelphia is located at the bottom of the Delaware River watershed, which includes ten percent of the U.S. population, and there are thousands of point sources of water pollution. The municipality relies on multiple barrier treatment of its drinking water, including particulate removal, disinfection, and distribution system regulation. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESTWR) which regulates *cryptosporidium* has been a significant driver for source water protection in the region. Significant pollution issues include storm water runoff, agricultural runoff, abandoned mine drainage, and releases of treated wastewater.

The City of Philadelphia has worked with EPA Region 3, the Coalition for Pennsylvania's Riverfronts, and the SAN on many different source water protection issues to protect its drinking water supply. Targeted grants have been imperative in allowing the utility to track changes and improvements in its drinking water program. However, the department feels that source water protection is still not funded to the extent necessary.

NDWAC inquired about whether the utility has been able to explain the cost benefits of source water protection.

### **EMERGING CONTAMINANTS IN PHILADELPHIA**

A second Philadelphia Water Department staff member discussed emerging contaminant research being conducted by the department and the department's risk communication strategy. Starting in 2003, the Philadelphia Water Department began unregulated contaminant monitoring. This research has continued, and many of the results have supported new research methods and chemical analyses. On March 10, 2008, the

Associated Press (AP) released a report that was based on a survey of all major water utilities, including Philadelphia. The report cited Philadelphia in the lead paragraph, and stated that Philadelphia officials had detected 56 pharmaceutical products in drinking water, including medicines for many well-known illnesses. Most of the attention was from the news and water professional community; the Department received only fifteen calls from its 1.5 million customers. The AP story claimed that water utilities were not disclosing data, were conducting inconsistent monitoring, and were not treating for contaminants.

As a result of this incident, the Department learned that message development and communication practice are essential to maintaining public trust. The utilities and the media have different goals, timeframes, standards, and language. Scientific illiteracy is expected and accepted, but oversimplified scientific information can become misinformation that generates mistrust.

One NDWAC member was interested to learn that there can be multiple audiences for information. For example, a utility can prepare a simple response, as well as additional information for highly educated audiences.

### **CONTAMINATION WARNING SYSTEM DEMONSTRATION PILOT**

The Philadelphia Water department noted that Philadelphia was one of four U.S. cities awarded funding to participate in a contamination warning system study. There are five components to the contamination monitoring plan: online monitoring, sampling and analysis, enhanced security monitoring, consumer complaint surveillance, and public health surveillance. The utility will develop a consequence management plan followed by a review and evaluation, and system engineering. This project focuses on creating a sustainable early-warning system that provides day-to-day application for the water utility.

### **DAY 3** (November 13<sup>th</sup>)

### **REGULATORY TOOLS AND RULE DEVELOPMENT UPDATE**

An SRMD staff member delivered a presentation on regulatory development. Current regulatory development will be based on the third Candidate Contaminant List (CCL3), EPA has also been asked by the Obama Administration to review the science, including health effects data for perchlorate related to infants, children, and pregnant women. In addition, data is being gathered for the second UCMR (UCMR2), and EPA is reviewing 71 primary drinking water regulations in a six year review. EPA is also revising the Total Coliform Rule (TCR), and it published short term revisions to the Lead and Copper Rule (LCR) in 2007 and held a public meeting on the revisions in 2008.

It was noted that EPA can approve new analytical methods without public comment through the *Federal Register*, and can create a notice relatively quickly after a standard evaluation of the new method. Other research priorities include biofilms, nitrification, intrusion, storage, contamination accumulation, water main repair, and cross connections.

The Council inquired whether it could review the SRMD multi-year research plan and place a member on the Board of Scientific Counselors (BOSC) that oversees the division. SRMD noted that the BOSC is composed of PhD scientists with experts in certain subject areas, but thought that NDWAC might be able to offer a liaison. The multi-year plan is an ORD document, but NDWAC might be able to provide input to ORD. It was also suggested that NDWAC continue to press the Administrator to support drinking water research, perhaps through a follow-up letter to the new administration. One member suggested that the Council review

its letter to the administration, sent in November 2008 about drinking water research, since the letter may not have addressed internal budget balancing or Congressional appropriations.

### **GEOLOGIC SEQUESTRATION OF CARBON DIOXIDE**

EPA Headquarters and a Region 3 staff member delivered a presentation on EPA's activities regarding the geologic sequestration of carbon dioxide. EPA's GS goals include: promulgation of regulations to support the commercial-scale development of underground sequestration, and tailoring the Underground Injection Control (UIC) program to address unique GS considerations such as huge volumes, buoyancy, viscosity, and potential corrosivity. EPA would like to create an adaptive regulatory approach that responds to new technologies and new information and to capitalize on the UIC program's thirty years of experience. EPA is also considering comprehensive rule development in concert with Clean Air Act (CAA) monitoring of greenhouse gases.

EPA has received comments on a proposed GS rule on many topics, including the area of review, monitoring, post-injection care, and long-term financial responsibility. It plans to respond to public comments, work with the Office of Air and Radiation, conduct Office of Management and Budget (OMB) review, and finalize the rule by December 2010.

NDWAC was concerned about extending waivers for injection conducted above the lowest underground source of drinking water (USDW). NDWAC cautioned that there may be many necessary, complex skills needed to evaluate whether to grant a waiver. The Council was also distressed by the program's \$10 million budget, since the process of permitting one of the sequestration wells is very complex and requires significant expertise. EPA was equally concerned that the states and the agency lack expertise and resources for adequate oversight. One member asked permission from the Council to advise the Administrator on this matter, since it is important for EPA to define review criteria to prevent future environmental disasters.

One Council member was concerned that these questions remain unanswered, while the final rule will be published in December 2010. EPA noted that it debated how quickly to proceed and that it anticipates making revisions to the rule after it is published. One reason for the urgency in promulgating a rule is that states can currently allow GS under the current UIC construct.

### **UPDATE ON HYDRAULIC FRACTURING**

EPA presented on hydraulic fracturing and natural gas resources, specifically in the Marcellus Shale, a large underground natural gas deposit. EPA explained that hydraulic fracturing (hydrofracking) is a process that improves the flow of fluids by connecting preexisting fractures. Fluid is pumped under pressure into the rock, exceeding the strength of the rock and opening fractures. Direct impacts can include USDW contamination through injection or migration of the fluids. Marcellus Shale sites would each require five million gallons of water, not including the volume of additives and fifty percent of the injected water could return to the surface as wastewater.

EPA studied hydrofracking in 2000, but did not identify a link between hydrofracking and USDW contamination. The Energy Policy Act of 2005 exempted hydrofracking from SDWA regulation unless diesel fuel was used as the injection fluid. However, companion bills in the U.S. House of Representatives and the Senate were introduced to undo the 2005 Energy Policy Act SDWA exemption, and if the legislation passes, the UIC program would once again regulate hydrofracking as Class II injection.

The Council noted that GS regulations will move forward without extensive research related to water quality, and that it is important to recognize the potential for change in water quality. Responsibility for drinking water quality will always rest on drinking water utilities, and the Council was concerned that the cost of contamination from activities could be passed on to water utilities.

### **NEXT STEPS, ISSUES FOR SPRING 2010 MEETING, AND WRAP-UP**

Two follow-up actions were proposed for the Council:

- 1) A follow-up message to the Administrator regarding EPA funding and the importance of research and regulatory development.
- 2) Cooperation between the UIC program and the drinking water community, especially regarding GS and hydraulic fracturing.

The Council discussed the follow-up letter to the Administrator to encourage: additional funding for health effects research to support regulatory development, research supporting regulatory implementation, and public communication; collaboration between OW and ORD and updates on the progress of the drinking water multi-year plan; and coordination with other agencies that regulate chemicals. One NDWAC member suggested that EPA needs a new research approach and policy that holds the producers of the contaminants accountable for increasing costs of treatment. It was noted that one of the Administrator's priorities is transparency, and it might be beneficial to frame the letter in that way.

EPA stated that a new staff member will assume NDWAC coordination as the new DFO at the next meeting. It was suggested that the next meeting be held in Chicago, Illinois during the first week of May 2010 to coincide with the CRWU Work Group meeting. One Council member suggested that the meeting be held in Oklahoma, so that the Council could tour the National Weather Center, have a discussion with the National Rural Water Association, and view a presentation from Chesapeake on hydraulic fracturing. The DFO noted that due to travel fund limitations, Washington, DC should also be considered.

Proposed topics included: new and revised regulations since the May 2009 meeting; an update on the Climate Ready Water Utilities Work Group; events and triggers for early warning systems; EPA's decision on the MCL for arsenic; EPA's strategic vision and goals; an update on sustainability efforts across the agencies; the impact of new energy sources (e.g., wind power, natural gas) on drinking water resources; and small system sustainability and the equitable treatment of small systems.