National Drinking Water Advisory Council

Meeting Summary

May 18-20, 2004

Holiday Inn - National Airport
2650 Jefferson Davis Highway
Arlington, VA 22202

Prepared for:
United States Environmental Protection Agency
Office of Ground Water and Drinking Water
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Members of the National Drinking Water Advisory Council (NDWAC or the Council)

Mr. Brian L. Ramaley, Chair
Mr. Michael G. Baker
Ms. Nancy Beardsley
Honorable John W. Betkoski, III
Mr. Bruce Florquist
Dr. Jeffrey K. Griffiths
Dr. Rebecca A. Head
Dr. Regu P. Regunathan
Mr. Dennis Schwartz
Dr. David P. Spath
Ms. Blanca A. Surgeon
Mr. Jeff Taylor
Ms. Lynn Thorp
Mr. Brian L. Wheeler
Mr. John S. Young, Jr.
Dr. Mary Davis, Science Advisory Board Liaison
Ms. Clare Donaher, Designated Federal Officer

Also present:

Randy Adams, Rural Community Assistance Partnership, Inc. (RCAP)
Phil Bastin, National Rural Water Association (NRWA)
Ron Bergman, Office of Ground Water and Drinking Water, U.S. EPA
Erica Brown, Association of Metropolitan Water Agencies
Eric Burneson, Office of Ground Water and Drinking Water, U.S. EPA
Elizabeth Corr, Office of Ground Water and Drinking Water, U.S. EPA
Matt Corson, Association of State Drinking Water Administrators (ASDWA)
Tara DeBolt, Office of Ground Water and Drinking Water, U.S. EPA
Cynthia Dougherty, Office of Ground Water and Drinking Water, U.S. EPA
Yu-Ting Guilaran, Office of Ground Water and Drinking Water, U.S. EPA
George Hallberg, The Cadmus Group, Inc.
Chuck Job, Office of Ground Water and Drinking Water, U.S. EPA
Rob Johnson, NRWA
Khanna Johnston, Office of Cooperative Environmental Management, U.S. EPA
Jeff Kempic, Office of Ground Water and Drinking Water, U.S. EPA
Rajiv Khera, Office of Ground Water and Drinking Water, U.S. EPA
Ephraim King, Office of Ground Water and Drinking Water, U.S. EPA
Vanessa Leiby, The Cadmus Group, Inc.
Ed Miller, U.S. Department of Defense
John Montgomery, NRWA

Deborah Newberry, Office of Ground Water and Drinking Water, U.S. EPA
Bridget O'Grady, ASDWA
Janet Pawlukiewicz, Office of Ground Water and Drinking Water, U.S. EPA
Marc Santora, Office of Ground Water and Drinking Water, U.S. EPA
Bob Scott, NRWA
Mike Shapiro, Deputy Assistant Administrator for Water, U.S. EPA
Charlene Shaw, Office of Ground Water and Drinking Water, U.S. EPA
Jim Taft, ASDWA
Ed Thomas, NRWA
Pat [Illegible], BNA, Inc.

TUESDAY, MAY 18, 2004

I. Opening Remarks – Mr. Brian Ramaley and Ms. Cynthia Dougherty

- Mr. Ramaley opened the meeting at 8:38 a.m. He welcomed all new members to the Council and asked that members of the public who wished to speak sign up at a table in the hallway. He then reviewed the agenda. Mr. Ramaley said that the contaminant candidate list (CCL) report is the culmination of a year-and-a-half of work, so there would be a great deal to talk about. Mr. Ramaley introduced himself as the director of the Newport News (VA) Waterworks and an environmental civil engineer. He spent half of his career in consulting and half in municipal water utilities. A round of introductions took place. Mr. Ramaley said that Dr. Griffiths would not be in attendance until Wednesday, May 19.

- Ms. Dougherty welcomed Mr. Ramaley as the new chair and thanked Dr. Spath for continuing to stay on the Council during the transition. She also thanked the new members for joining and going through the orientation. Ms. Dougherty mentioned two things that were not on the agenda, but were important. The first item was drinking water research. The research team was not available to come to the meeting, but Ms. Dougherty hopes to have its members present at the next meeting. The second item was infrastructure sustainability. Infrastructure sustainability did not fit it into the schedule for this meeting, but it will be on the November 2004 meeting agenda.

- Ms. Dougherty said that a little over a year ago, EPA held a forum to talk about sustainability. From that forum, EPA identified four areas to focus on: better management; full-cost pricing; water efficiency; and the watershed approach. These are the four pillars of sustainable infrastructure. Ms. Dougherty felt that the November 2004 meeting might be a good time to talk about where EPA is with these areas.

- Ms. Dougherty mentioned some personnel changes in the Office of Water. Assistant Administrator (AA) Tracy Mehan left in December 2003, and Ben Grumbles is the Acting Assistant Administrator. Ben Grumbles has been nominated by President Bush to be the new AA, but he has not yet been confirmed by the Senate. Bill Diamond, who was director of the Drinking Water Protection Division (DWPD), has taken a job in the pesticides program. Ms. Dougherty could not say who the new director of DWPD would be. Peter Shanaghan has moved to DWPD to be the team leader for the State Revolving Fund (SRF). Veronica Blette, who was leader of SRF, is now Ms. Dougherty's special assistant. Clare Donaher is the new acting Chief of Staff for the office. Eric Burneson has become chief of the Targeting and Analysis branch. Brenda Johnson, who was the NDWAC's Designated Federal Officer (DFO) when she worked at EPA, is now working for the Agency as a contractor.

- Mr. Ramaley expressed his appreciation to Dr. Spath, who chaired the Council for the past 3 years. Dr. Spath kept things running smoothly and cooperatively, Mr. Ramaley noted. Mr. Ramaley said that he will attempt to follow in Dr. Spath's footsteps. Mr. Ramaley then turned the floor over to Ms. Dougherty for her presentation on EPA's new strategic plan.

II. Overview - Ms. Cynthia Dougherty

EPA's New Strategic Plan

- In the past, EPA had 10 or 12 goals; now EPA is focusing on 5 goals:

    1. Clean Air and Global Climate Change.
    2. Clean and Safe Water.
    3. Land Preservation and Restoration.
    4. Healthy Communities and Ecosystems.
    5. Compliance and Environmental Stewardship.

- The traditional water programs are shared between two goals: Clean and Safe Water and Healthy Communities and Ecosystems.

- Clean and Safe Water goals include protection of human health, which includes EPA's focus on drinking water, protection of water quality, and research and science.

- The three key themes of the water goal are to focus on specific improvements in the degree of protection of public health and waters; work closely with states, tribes, stakeholders, and the public; and promote more effective cooperation among EPA programs and other federal agencies.

- The new Strategic Plan describes how each of the health and environmental goals that EPA is trying to reach by 2008 will be accomplished, and it describes specific programs and reporting measures.

- Goal 2: Clean and Safe Water, Objective 1: Protect Public Health, Sub-objective 2.1.1: Water Safe to Drink.

    - By 2008, 95 percent of the population served by community water systems (CWSs) will receive drinking water that meets all applicable health-based standards through effective treatment and source water protection (SWP).

- EPA has seven strategic targets within sub-objective 2.1.1. Four of the targets emphasize CWSs meeting health-based standards, two emphasize safe drinking water on tribal lands, and one emphasizes SWP. This goal is supported by 27 program activity measures.

- The strategic targets do not all have annual targets; some are set further out. There are six annual targets. The first two targets (A and B) look at population served. The second two targets (C and D) look at percent compliance within drinking water systems themselves. The targets are not looking just at large systems. The fourth target (E) focuses on Indian Country, and the last target (F) focuses on source water areas.

- Some measures are related to activities that may not directly lead to the targets but lead to them indirectly. For example, the SRF indirectly ensures compliance.

- The three phases of implementation are as follows:

    - Phase I - FY05 National Program Guidance (Final April 30th).
    - Phase II - Region/State Program Planning for FY05 (Now - September 2005).
    - Phase III- FY 05 Program Implementation (October 2004 - September 2005).

2005 National Water Program Guidance

- The FY05 National Program Guidance explains how key program activities fit together for FY05 and lays out states' and communities' targets and major activities.

- The National Water Program Guidance references the national grant guidance.

- The National Water Program Guidance identifies and describes:

    - The National FY05 targets.
    - Regional FY05 targets for six strategic targets and six program activity measures.
    - Major activities of EPA, states, and CWSs that will take place in FY05 relative to the Drinking Water Goal.

- Activities to ensure safe drinking water are presented in five core program areas:

    1. Development or revision of drinking water standards.

    2. Implementation of drinking water standards and other program requirements.

    3. Promotion of sustainable management of drinking water infrastructure.

    4. Protection of sources of drinking water from contamination.

5. Assurance that critical water infrastructure is secure from terrorist and other intentional acts.

- Developing or Revising Drinking Water Standards:
  - Promulgation of rules.
  - Continuation of standard-setting processes.
  - Analyses of best available science and information.
  - Expansion of initiative on effective alternatives to regulations.
- Implementing Drinking Water Standards and other Program Requirements:
  - Compliance with existing rules.
  - Capacity development for new and existing regulations.
  - Data access, quality, and reliability.
- Promoting Sustainable Management of Drinking Water Infrastructure:
  - Drinking Water State Revolving Fund (DWSRF).
  - Sustainable infrastructure leadership initiative.
    - Work with states, water utilities, and other stakeholders to identify and promote best practices.
  - Infrastructure assistance to Puerto Rico.
  - Improving Indian tribes' and Alaskan Native villagers' access to safe drinking water.
- Protecting Sources of Drinking Water from Contamination:
  - Voluntary SWP strategies.
  - Coordinate water protection efforts (within EPA and other federal agencies).
    - Focus on delineated watershed protection areas.
    - Safe Drinking Water Act (SDWA)-Clean Water Act (CWA) coordination.
  - Protecting underground sources of drinking water.
    - Focus on shallow wells.
    - Strengthen support to states on Class V efforts.
- Safeguarding Critical Water Infrastructure:
  - Best security practices.
  - Emergency response.
  - Information dissemination.

- Homeland Security Presidential Directive 9.

- Copies of the National Water Guidance for FY05 were handed out to Council members.

- Every 3 years EPA updates its 5-year strategy. EPA will be starting the next round within the next year. Ms. Dougherty said that it may be useful for NDWAC to discuss where the guidance should be going and provide EPA with some advice before the cycle starts again next year. She suggested that this could be a topic for the November 2004 meeting.

- Ms. Dougherty mentioned that EPA has talked before about how the Office of Management and Budget (OMB) does a program analysis: OMB has developed a Program Assessment Rating Tool (PART) and looks at the budget and how well it is meeting EPA's strategic goals. This is the third year that the PART is being implemented. Currently, OMB and EPA are looking at underground injection control (UIC) and Public Water System Supervision (PWSS) grant programs to decide whether they are meeting the goals and whether there should be other measures of the efficiency with which government dollars are being spent to meet goals.

Questions and Comments

- Ms. Surgeon asked Ms. Dougherty whether the 95-percent compliance goal is also adopted by each individual state. Ms. Dougherty replied that EPA wants to reach that goal nationally, so in order to accomplish that, EPA needs to have 95 percent compliance in each state, or higher in some states to make up for states that are lower. EPA also has regional goals to which the states contribute. EPA asks the states to figure out what they can do. That feeds into the regional goal, which feeds into the national goal. Right now, EPA has 91 percent compliance.

- Dr. Spath asked whether there was any thought of prioritizing the activities and goals in the strategic plan, particularly at the regional level, to allow states to achieve some of the goals but realizing it will be difficult for states to achieve all of them. Ms. Dougherty replied that many years ago EPA had a guidance like that, but more recently EPA has left that discussion up to the regions and states individually because each state is going to have a different situation. EPA does not want to make a national guidance that does not fit for every state. Each state knows how it can reach its goals; how each state does that is different. Resource constraints may mean that, over time, EPA will have to adjust national targets. The question is: How quickly can EPA make progress towards that goal?

- Dr. Regunathan asked whether the plan included distribution-related activities. Ms. Dougherty replied that distribution-related activities are included in EPA's regulations, such as the Lead and Copper Rule (LCR) and the Total Coliform Rule (TCR).

Mr. Ramaley added that there is a reference to those activities on page 18 of the Strategic Plan.

- Mr. Baker said that because Ohio operates under a different fiscal year, his water systems have been negotiating with the region themselves. Mr. Baker said that the national plan provides that flexibility and it has been working well. He drew attention to the opportunity for the Council to provide good input for the FY06 Strategic Plan. Mr. Ramaley added that he was going to make a similar comment. He believes it is important that those goals and visions be tested, starting with EPA and working down to the smallest systems. Mr. Ramaley said that he would look forward to FY06 Strategic Plan as being part of the Council's discussion at the November 2004 meeting.

III. International Colloquium on Small Systems - Mr. Bruce Florquist

- The International Colloquium on Small Systems was held at the "home of biofilm" at Montana State University. It began on Sunday evening, May 9, with an address from Dr. Ismail Serageldin, Director of the Library of Alexandria (Egypt) and professor at the University of Amsterdam. He is considered a world-wide expert on drinking water systems.

- The colloquium included a presentation on the Walkerton, Ontario, incident in 2000. A book on this incident is due out in August 2004. The book points out the breakdown of everything from operator training and reporting all the way up the line.

- The attendees were organized into three groups. Each group was evenly divided between scientists, operations specialists, and regulators. All the groups were given the same list of charges and questions to address, although they were given the opportunity to change the list and goals if the group felt it was appropriate. Training and education became the primary issue when dealing with small systems. There was some discussion about using a risk management approach instead of a compliance-based approach for small systems. Information from the New Zealand Ministry of Health can be used as guidance and is available on line.

- Wednesday afternoon, May 12, each group presented its report. The staff and graduate students at Montana State University will publish the work done by all three workgroups. The publication will be released by August 2004 and will include some case studies and some anecdotes.

- One topic of discussion was the fact that many small systems get oversold on what they are trying to build. The colloquium attendees agreed that there should be some kind of a clearinghouse for small systems to use to make sure they are getting good

recommendations from their consultants. Everybody at the colloquium struggled with the definition of a small system. No specific definition was set except the following: "Protecting public health in water systems with limited capacity and ability to achieve viability. Systems small in size are those that most often fall into this definition."

- Mr. Florquist feels that regulators need to develop better systems surveillance to ensure proper operations of systems. There is no international advocate for small systems. Each country or each region tends to do it differently. He is hopeful that a standard can be developed that can be used by everybody.

Questions and Comments

- Mr. Young asked about the target audience for the report. Mr. Florquist was not clear on that. He said that all attendees would be receiving copies of it and that it will be posted on Montana State University's Web site. Mr. Florquist said that the presentations of each workgroup will be available perhaps through both EPA and Montana State University's Web site. Mr. Young said that there is often a lot of good work done, but it rarely gets back to small systems. Mr. Florquist said that simply through the list of people that were present at the colloquium, the information will get back to small systems. He said that a good spectrum of people attended the colloquium, including John Bender from EPA.

- Dr. Regunathan said that he noticed the participants were primarily from developed countries. He said that much of the developing world does not even have the infrastructure to provide water, let alone quality water. They barely have means to provide water for an hour a day. The quality of water is ensured by their own treatment at home. He asked whether that topic was discussed. Mr. Florquist replied that he was not sure why no persons from developing countries were present at the colloquium.

- Ms. Surgeon said that small systems cannot afford to attend these meetings. She asked how the information gets to small systems. She also asked whether these colloquiums would continue. Mr. Florquist was not sure how they will distribute the information. He said again that, with those present at the colloquium (Rural Community Assistance Partnership [RCAP]) and the National Rural Water Association [NRWA]), it will be pretty well distributed. He did not know where it would go from here. This was the first colloquium where they brought in people other than microbiologists to discuss water systems. Mr. Florquist believed the organizers were pleased with what happened, so the colloquium may continue on an annual basis.

- Mr. Betkoski asked how the colloquium addressed over-engineering of systems by contractors, how big an issue that was, and what recommendation came out of that. Mr. Florquist said that it is a bigger issue than he (Mr. Florquist) thought. One recommendation was to interview at least three engineering firms to develop estimates of

what needs to be done and how much it will cost. Mr. Florquist felt it was a good recommendation, but was unsure how you get there.

- Dr. Regunathan asked whether there was any talk about finances. He asked how systems will afford to do this. He said that the communities that can afford only $3 to $5 per household would have difficulty. Mr. Florquist replied that they did discuss this issue. One item discussed was NDWAC's small systems implementation working group report. He said that it is obviously a huge problem, but the attendees at the colloquium did not have any solutions.

- Mr. Ramaley commented that it seemed as though mostly developed nations attended the colloquium. He felt that developing nations would have added much to the discussion by providing a different perspective on small systems.

- Mr. Schwartz commented that everything on the list that the group discussed was very interesting. He noted that there are projects going on in some states working with SRF set-asides and capacity development programs. He sees sustainability as having the best success through capacity development initiatives. Mr. Schwartz asked Mr. Florquist to ensure that the NDWAC members find the link to the report when it becomes available on the Web. Mr. Florquist said that he would definitely do that.

FIRST BREAK (Recess 9:51 a.m. to 10:20 a.m.)

Mr. Ramaley reconvened the meeting at 10:20 a.m. and introduced the presentation on water security.

IV. Water Security Updates and Initiatives - Ms. Janet Pawlukiewicz, Mr. Marc Santora, and Mr. Brian Ramaley

Update on Activities - Ms. Janet Pawlukiewicz

- Ms. Pawlukiewicz introduced Debbie Newberry and Tara DeBolt, who are also in OGWDW's Water Security Division.

- EPA's Role in Water Security:

    - EPA has authority through the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. Under the Act, EPA was required to prepare a threat document and distribute it to water utilities and to prepare guidance for systems that serve fewer than 3,300 persons.

- EPA also has authority under the Homeland Security Presidential Directives. One directive that followed the Homeland Security Act puts the Department of Homeland Security (DHS) in the role of coordinating homeland security with 13 key infrastructure sectors, including water. There are other directives that have to do with emergency response, but they are not as directly related to water.

- EPA has set up a permanent Water Security Division (WSD). The division works very closely with the National Homeland Security Research Center in the Office of Research and Development (ORD).

- The four primary consequences of concern that the WSD is trying to prevent are:

  - Significant loss of supply of pressurized water.
  - Long-term loss of supply or infrastructure.
  - Catastrophic release of chemicals.
  - Adverse impacts to public health or confidence from contamination.

- Water Sector Achievements:

  - Vulnerability assessments (VAs).

    - All large systems have submitted VAs. Large systems are those that serve more than 100,000 persons. Among small systems, 13 percent have submitted VAs. The small system VAs are due by the end of June.

  - Emergency response plans.

  - Research/tool development.

  - Water Information Sharing and Analysis Center (Water ISAC).

    - EPA provided support for the development and management of the Water ISAC, which is a secure portal for sensitive information. EPA is developing a new WATER IDS to push information to as many utilities as it can get access to and who want to be on the list. This will be a semi-secure, password-protected site where EPA can put semi-sensitive information. Forty-four states have access to the Water ISAC. Ms. Pawlukiewicz said that the ISAC's role in water security will continue to evolve.

- EPA sees these five principles as important in water security:

  1. Partner.
  2. Plan.
  3. Procure.
  4. Practice.
  5. Promote.

- Partnering:

  - It is important to reach a full spectrum of partners that might be involved in planning for water security or responding to an incident, including emergency responders, law enforcement, health practitioners, public health officials, other utilities, and interdependent sectors (electric and power). WSD has begun some training programs with law enforcement organizations and has provided training for law enforcement and emergency responders for a long time.

- Planning:

  - VAs.

  - Emergency response plans.

  - Tools available.

    - Vulnerability assessment methodologies.

    - Emergency response guidance.

    - Response protocol toolbox: a six-segment guidance document that focuses on the contamination threat. Different modules cover an overview of the whole response to more specific information on how to approach a scene that might be contaminated, how to determine whether the contamination threat is confirmed, the analytical methods that labs might use, and public health actions for a confirmed incident.

    - Laboratory compendium: available on the Web site (need to be a utility to access it).

    - Baseline threat information for VAs of CWSs.

- Threat-level guidance: guidance on what utilities should try to put in place at different levels of threat (orange, yellow, or red) as determined by DHS.

- Procuring:
  - Security enhancements.
  - Tools available.
    - Consumer guide to security enhancements: it does not rate particular brands, but it explains their features.
    - Financing security enhancements through State Revolving Loan Funds.
    - Environmental technology verification available through a Web site.
    - Research plan activities:
      - Supported ASCE to develop voluntary standards.

- Practicing:
  - Tools available:
    - Contact information updates.
    - Emergency response exercises and drills.
    - Risk communication guidance.

- Promoting:
  - It is important for utilities to build a security culture within their organizations. Utilities need to make sure security is part of business as usual. WSD has ongoing programs such as operator certification.
  - WSD also thinks it is important for utilities to work with local and state government officials.

- New Initiatives and Emphases:
  - Best security practices and policies.
  - Emergency response exercise drills.
  - Security enhancement guidance.

- National water surveillance program and laboratory network.
- Risk communication guidance.
- Research.

- Water Security Product Guide:

  - EPA has developed a series of security product guides to assist treatment plant operators and utility managers in reducing risks from and providing protection against possible natural disasters and intentional terrorist attacks. The guide can be found at www.epa.gov/safewater/security/guide/index.html.

- Homeland Security Presidential Directive 7 (HSPD-7):

  - Defines the role of the federal government in protecting critical infrastructure and key resources in cooperation with the private sector and state and local governments.

  - DHS is responsible for coordinating the overall national effort to enhance protection of critical infrastructure and key resources.

    - 13 critical infrastructure sectors.
    - 4 key resources.

  - The DHS approach has been to develop a risk-based National Critical Infrastructure Protection (CIP) Program.

    - The National Infrastructure Protection Plan (NIPP) is the mechanism for helping achieve the goal of a dynamic, integrated National CIP Program.

- National Infrastructure Protection Plan (NIPP):

  - DHS is coordinating development of NIPP, which will use sector-specific plans (SSPs) authored by sector-specific agencies (SSAs).

  - EPA is the SSA for the Water Sector (Drinking Water and Wastewater) and will prepare the Water SSP.

- The Water SSP will cover the following topics:

  - Sector background.
  - Progress and efforts in identifying sector assets.
  - Progress and efforts in addressing vulnerabilities and prioritizing assets.

- Progress and efforts in developing protective programs.
- Progress and efforts in measuring success.
- Planning for research and development.

- Homeland Security Presidential Directive 9 (HSPD-9):

  - Directs EPA, the U.S. Department of Agriculture, and the Department of Health and Human Services (HHS) to build on and expand current monitoring and surveillance programs to develop robust, comprehensive, and fully coordinated surveillance and monitoring systems for water quality and to develop nationwide laboratory networks for water quality.

- HSPD-9 Design and Implementation:

  - Monitoring and surveillance.

    - Developed a profile and cost estimates for 40 locations.

    - Identified gaps in research.

    - Working with partner organizations to develop this type of monitoring network within their own utilities.

    - Developed a preliminary list of available monitoring technologies.

    - Co-sponsoring a workshop with the Centers for Disease Control and Prevention (CDC) to bring together water utilities and public health communities to discuss surveillance and indicators of waterborne disease.

- Laboratory Alliance:

  - Working with CDC to develop implementation roadmap and timeline for alignment.

  - Leverage existing infrastructure to support monitoring and surveillance program.

  - Will work with the Association of Public Health Laboratories (APHL), states, the Federal Bureau of Investigation (FBI), Forests and the European Union Resource Network (FERN), and CDC to evaluate proposed approaches and build networks.

- For more information:

  www.epa.gov/safewater/security
  www.epa.gov/nhsrc
  www.epa.gov/etv
  www.waterisac.org
  www.waterhealthconnection.org

Questions and Comments

- Dr. Head commented that public health agencies across the country have the responsibility of putting together their own emergency plans. She hoped that there is some kind of coordination for utilities to contact their public health officials and emergency contacts, on a local level, because emergency plans will not work if all these groups do not all coordinate. She said that it is important to work with CDC in overseeing the local health plans (instead of CDC just overseeing the labs). Ms. Pawlukiewicz replied that WSD has been trying to cover that in some aspects. It will invite CDC, local government officials, emergency responders, and utilities to the local workshops to build those relationships. Also, under the Bioterrorism Act, it is suggested that utilities work with their local officials to develop emergency response plans and it is hoped that they have been doing so.

- Mr. Florquist said that it is important to work with local officials and to work on crime scene preservation. He said that one issue discussed at the International Colloquium in Montana was the significance of sampling. In a small community, it is easier to know if something happens, but in New York City, people will not know if there is anything going on. Mr. Florquist said that there needs to be more of a grassroots approach to get reports from doctors directly. Ms. Pawlukiewicz replied that medical practitioners do need to report to public health officials. Some of EPA's workshops will cover crime scene preservation. She feels that local law enforcement definitely needs to get involved.

- Ms. Surgeon congratulated WSD on its efforts. She asked whether there is anyone identifying gaps and doing one-on-one follow-ups after WSD has received the assessments and plans. Ms. Pawlukiewicz replied that the division has been reviewing the assessments and plans. If there are concerns, WSD and the Regions follow up with the utility. The division is reviewing assessments to see if people are following the guidance issued on how to do a VA.

- Ms. Surgeon commented that vandalism, such as people jumping the fence or shooting at the tanks, is a big problem for small utilities. She asked where small utilities could turn for help on that. She said that some small communities are getting cameras to watch for vandalism. Ms. Pawlukiewicz agreed that vandalism is a big concern for many utilities.

She did not know where the line is between vandalism and a terrorism threat to a community. EPA's threat document outlines several types of potential attackers and includes vandalism as something utilities should consider when doing their VAs.

- Dr. Regunathan said he was very pleased to see the focus on the distribution system. He heard that ETV may be ending and asked whether that was true. Ms. Pawlukiewicz replied that EPA is looking at how it might modify the ETV program so that it is more responsive, but the Agency is not planning on ending it. Dr. Regunathan commented that it would be good to set up a clearinghouse on technologies to cover the key features that would be desirable in these consumer technologies and then test the technologies for these features.

- Mr. Wheeler commented that there are still issues about how to communicate with local health officials. He said that the Water ISAC is a tremendous resource, but sometimes it can be an information overload. He asked EPA to not overload it by sending too many e-mails or bulletins.

- Dr. Head said that physicians are required to report to public health officials, and many states are implementing an electronic surveillance system down to the local level. She also added that CDC reports daily on any unusual situations that might be occurring. CDC has a forensic epidemiology course to bring together first responders and deals with the chain-of-custody issues, evidence, and epidemiology. She felt that something like that could be altered and made available to treatment plants, and also bring in law enforcement.

- Dr. Spath commented that his department's experience in California has demonstrated the need for coordination. Much has been learned in regional talks bringing in law enforcement and officials. They realized that they all have different ideas of who is responsible. Drinking water programs on the environmental side instead of on the state side are not tied in with CDC and public health departments as much. Ms. Pawlukiewicz replied that the DHS envisions an information system that would bring information together from all different channels (Food and Drug Administration, CDC, and others) and provide it back through the sectors. This information system is still being envisioned. She said that system may be a way to get information across some of those borders. DHS has the ability to protect information that is voluntarily sent to it. She agreed with Dr. Spath that coordination at the state level is vital.

- Ms. Beardsley asked who can obtain the lab compendium. Ms. Pawlukiewicz replied that it is available to utilities. To get into the compendium, a security check must be cleared first. Ms. Pawlukiewicz offered to talk with Ms. Beardsley more about that.

- Dr. Regunathan asked what the 40 locations meant when Ms. Pawlukiewicz was talking about the HSPD-9 monitoring and surveillance. Ms. Pawlukiewicz replied that there is not really a convenient monitoring system. EPA needs to work with a few utilities to see what might work before committing to something.

- Mr. Schwartz asked how to get into the lab compendium. Ms. Pawlukiewicz replied that information about the compendium is available from the public Web site, but only utilities can get into the compendium.

- Mr. Schwartz asked whether the list of Web sites was generally available and whether some of those Web sites were protected. Ms. Pawlukiewicz replied that, except for the Water ISAC, the Web sites are not protected.

- Mr. Ramaley commented that the Water ISAC information push system needs to have some knowledge as to whom the information is being sent. He asked how you send security alerts to a mailing list that may consist of more than 10,000 addresses and how you make sure it is going to the right people and being used in the right way. He believed that we are not at the point yet where the early warning systems will detect problems in time for us to make a prescriptive response. He said that if there is some sort of contamination, the first place it is likely to be observed is at the local medical level. He felt that some sort of active public health surveillance has to be there. Ms. Pawlukiewicz replied that surveillance with public health officials is an important part of EPA's framework.

- Ms. Dougherty commented that, unless the guidance has been practiced regularly, nobody will follow the guidance in an emergency. It is not the kind of guidance that can be pulled out during an emergency. You need to practice so you know what to do if something happens. Ms. Dougherty felt that practice is most important, and without practice, none of the emergency response plans will work. She believed that a variety of people need to be included in the practice. Dr. Head added that the most important piece to include is a variety of different agencies in those practice exercises; otherwise, the emergency response plans will not work.

- Mr. Schwartz commented that he does not see practice exercises happening in small systems in rural America. It is dramatically less possible in small systems. The awareness and appreciation of security are present in small systems, but it is hard to designate people to pay attention to particular items. He felt that this is a case where the VAs are going to go on the shelf and gather dust. Small systems have a tremendous number of challenges beyond security. They don't underestimate security problems, but they will be challenged to have the resources to do drills. Mr. Schwartz felt that this will be a big stumbling block.

- Mr. Taylor said that large water utilities are having problems getting interdependent agencies, such as electric companies, to work with them on security. Getting everyone to coordinate together is quite difficult. He asked whether anyone is talking about going further than information sharing, to a legislative technique to get agencies to work together. He asked whether anyone is considering forcing agencies to do what needs to be done. Ms. Pawlukiewicz was not sure what has been done on that. Mr. Ramaley said that the water sector is probably the most predominantly governmentally owned and operated. The others are privately owned, so there are a number of complicating factors there. Ms. Dougherty said that EPA should raise this issue with DHS.

NDWAC Workgroup on Best Practices - Mr. Marc Santora

- The NDWAC voted to have a water security working group. The workgroup will not be prescriptive in nature; it will provide more of a roadmap.

- The charge of the workgroup includes the following:

    - Identify, compile, and characterize best security practices for drinking water and wastewater facilities.

    - Consider mechanisms to provide recognition and incentives that facilitate a broad and receptive response among the water sector.

    - Consider mechanisms to measure the extent of implementation of these best security practices and policies and identify impediments to their implementation.

- In February 2004, EPA published a **Federal Register** (FR) notice to solicit nominations for the working group. The targeted membership includes drinking water and wastewater utilities, emergency first responders, public health officials, technical assistance providers, environmental organizations, rate setters, state administrators, and a water sector coordination lead. Dr. Head, Mr. Young, and Mr. Betkoski have agreed to be the NDWAC representatives on the working group.

- The water sector coordination board was established to provide an "industry caucus" for the water sector to present the industry perspective. The board is currently undertaking a similar initiative to identify best practices in terms of water security. EPA anticipates that this endeavor will contribute to the water security working group's activities.

- EPA is hiring a professional facilitator to lead and coordinate the working group's efforts. EPA is targeting 16 members and is waiting to hear back about acceptance.

- EPA is hoping to have a kick-off meeting or conference call in late June 2004. EPA is thinking of having the working group meet every 4 to 5 weeks after the initial meeting. The working group will provide a status report to the full NDWAC at the November 2004 meeting. EPA is anticipating completion of the charge in approximately 1 year.

Questions and Comments

- Mr. Ramaley commented that the level of work laid out for the water security working group is similar to the level of work done by the CCL working group.

- Ms. Dougherty asked Ms. Pawlukiewicz to talk more about the Water Sector Coordination Board. Ms. Pawlukiewicz said that there is a group under formation. The DHS also has a Federal Advisory Committee, called the National Infrastructure Advisory Council. It is a cross-sector council (electricity, water, etc.). Sectors that have their own private-sector organizations seem to be more effective at working with the federal government on security issues, so quite a few representatives from the water sector were assembled to provide a water-sector perspective. Ms. Pawlukiewicz mentioned that at first there was some confusion whether the National Infrastructure Advisory Council would duplicate the NDWAC water security working group. EPA realized that it would not be duplicative, but rather helpful for the two to work together. EPA hopes the schedule allows for the two groups to work together.

- Mr. Ramaley asked whether EPA knows the full membership of the board. Ms. Pawlukiewicz replied that EPA does not know the full membership, but when it does the Agency can give it to the NDWAC members.

Bilateral Meeting on Homeland Security - Mr. Brian Ramaley

- This was the fourth bilateral meeting, but the first bilateral discussion on security that went beyond cyber infrastructure. It was a series of discussions between Australian government officials and industry sectors and U.S. government officials and industry sectors.

- About 90 people (approximately 45 Americans and 45 Australians) attended the meeting on April 20-22, 2004 in Canberra, Australia. The U.S. delegation was led by the Department of State. It included many representatives of DHS, EPA (Ms. Pawlukiewicz represented EPA), the Department of Commerce, the Department of Justice, and industry representatives from all of the sectors (telecommunications, water, energy, transportation, and others).

- The focus of the meeting was to identify areas of cooperation between the United States and Australia. There was a great deal of interest in exchanging best practices in the

sectors. There was also a great deal of interest in building a business case for security enhancements. A variety of cooperative efforts, such as research, were discussed.

- Mr. Ramaley said that he gave a slide show about the Water ISAC, how it is used, and how it evolved. One conclusion that he took away from the bilateral meeting was that the Water ISAC is as good as or better than any similar effort. He got the sense that the Water ISAC is pretty close to being the state-of-the-art in terms of what ISACs can be.

- There was no Australian government counterpart to Ms. Pawlukiewicz at the meeting because in Australia the federal oversight role is very limited. Although there is little federal coordination among water utilities, one Australian organization does a great deal of coordination and is interested in sharing information with the United States.

- This bilateral meeting was the first international bilateral focused on the water sector. The U.S. water sector established close ties with its Australian counterparts in Sydney and Melbourne and in the trade organizations. Mr. Ramaley hopes those relations can enhance security efforts in the United States.

- Ms. Pawlukiewicz added that the Australians had a very strong interest in the ISAC.

- Mr. Ramaley commented that a number of people came up to him afterwards and said that the U.S. water sector could act as a model for many other sectors.

LUNCH (Recess 12:04 p.m. to 1:41 p.m.)

Mr. Ramaley reconvened the meeting at 1:41 p.m. and introduced Mr. Ron Bergman.

V. Coordination of Training and Technical Assistance (TA) - Mr. Ron Bergman

- EPA measures success in public health protection through the EPA Strategic Plan, Congressional oversight on grants management, OMB review of PWSS grants, and review by the inspector general of PWSS grants.

- When EPA develops training, it uses a tiered approach:

    - EPA focuses on future standards and trying to get people ready to implement the new rule.

    - EPA is also trying to go back and look at some standards (LCR and TCR) to make sure that, while planning for new rules, systems remember the current rules.

  - EPA is trying to develop training for basic system sustainability; the owner/operator has to get the system working properly.

- The Drinking Water Protection Division's foremost goal is to improve public health protection. Other Government Performance and Results Act (GPRA) goals include improving system self-sufficiency, increasing system and state knowledge of requirements, and reducing the burden on systems and states.

- Barriers to compliance vary with the different types of drinking water systems:

  - *Systems in compliance* need general direction, but they can run their program.

  - *Systems lacking financial and managerial capacity* may know what they need to do to come into compliance, but they lack the capacity to do so.

  - *Systems lacking technical capacity* do not understand what they need to do to come into compliance.

  - *Systems lacking motivation* may be owned or operated by persons who have other jobs and for whom the water system is not the primary concern.

  - *Systems requiring enforcement.*

- The Drinking Water Protection Division hopes that, with help from its technical assistance programs, the division can help more systems to comply with drinking water regulations. EPA is trying to work with several entities that are also involved in drinking water protection.

- Systems may need easy-to-use references, training, basic research on treatment, general consultation, hands-on technical assistance, and workshops.

- Partners in implementation include EPA, Association of State Drinking Water Administrators (ASDWA), states, territories, American Water Works Association (AWWA), Rural Utility Service (RUS) agricultural extension, NRWA, RCAP, Water Systems Council (WSC), Technical Assistance Centers (TACs), and Environmental Finance Centers (EFCs).

- Strategy for Coordination:

  - Build strong partnerships among EPA, states, and technical assistance providers.
  - Avoid duplication by focusing on strengths of each organization.
  - Hold all parties accountable for success.

  - Recognize unique state role.

- EPA Strategy for Training and Technical Assistance:

  - Empower systems to improve public health protection and reduce burden on states.

  - Deliver training and materials directly to water systems and state field-staff. EPA is trying to do more Web-based and Internet training because of state budget restrictions.

  - Develop tools to increase system financial and managerial capacity through full cost pricing, asset management, and water efficiency.

- Three main entities provide hands-on technical assistance to water systems: Rural Water Associations (RWAs), RCAPs, and states.

- EPA produces state implementation manuals on rules, as well as two-page quick reference guides. The Agency has completed implementation manuals and quick reference guides for rules that are already out.

- For small systems and their providers, EPA produces more detailed compliance guides and provides some worksheets to help systems work through the rule.

- EPA is developing some general planning tools: an asset management workbook and a strategic management workbook.

- EFCs are spread throughout the country. EPA has tried to encourage them to be regional instead of state specific.

- TACs are also spread throughout the country. They do everything from research on treatment technologies to providing workshops and computer-based learning tools. The Montana TAC develops an operator basics tool, which is a good walkthrough of general information on water systems. The Kentucky TAC developed a water-loss calculator.

- One thing EPA has developed is a computer profiler for LT1. EPA has also developed a computer program, available on CD-ROM, to help write consumer confidence reports.

- Tools in development include:

  - Web-based training.

- Waste disposal reference guides.
- Arsenic Treatment Technology Evaluation Handbook for small systems.
- Rule Wizard, a computer-based program that will enable state staff to use a tutorial to get information on general federal rule requirements based on water system characteristics. (Enter information on size, source [ground water or surface water], and other characteristics, and the program will provide federal rule requirements for that system.)
- Shorter, easier-to-use documents.

- EPA's tools will do the following:
  - Help small systems identify what they need to do to come into compliance.
  - Educate operators about the importance of properly operated systems.
  - Help small systems incorporate finances and operations and maintenance while meeting their compliance schedules.
  - Help small systems organize or consolidate their monitoring requirements for the different rules.
  - Help with risk-based communication and best management practices.
- EPA is trying to coordinate with partners, understand the strengths of each partner, and figure out how to measure success.

Questions and Comments

- Ms. Surgeon had several comments. She said that the technical assistance is usually the first thing that goes during budget cuts. She felt that it is important to do these types of presentations at all levels (agency, community, and Congressional) to inform people. Second, Ms. Surgeon said that the network of assistance providers is competitive, but cannot and should not be seen as doing the same kinds of things. She said one question often asked is, "Why do we have several organizations doing the same thing?" She said that there is such a need that even all of the entities that are out there cannot keep up with it. She believes EPA and NDWAC members should help stop that perception of duplication. The assistance providers need to coordinate better. Third, Ms. Surgeon said that small communities are behind on technology; the resources are not there to buy the equipment. Even if small communities have computers, they may lack Internet access

and cannot get Web-based training. She feels that some of these tools are helpful, but are ahead of a lot of the utilities. Last, Ms. Surgeon said that the idea of having shorter, easier to use guidelines is great because utilities do not have the time to read a lot of information. EPA has listened to people in the field.

- Mr. Wheeler asked what service EFCs provide and how small systems access that service. Mr. Bergman replied that EPA has been trying to get information out to the states, RCAPs, and the NRWA so they know about those finance centers. EPA has links on its Web site. The EFCs develop documents on rate setting, otherwise they are consultants. The Idaho finance center is working with systems to develop documentation for exemptions. There is no specific scope to the EFCs. They can do anything within the scope of finance issues. Ms. Dougherty added that EFCs have a larger scope than drinking water finance issues. They focus on any environmental finance issues. Mr. Wheeler commented that money is the root of all evil and this is the first time he has heard of the EFCs.

- Dr. Regunathan asked whether the small system compliance guide is on the Web site or only paper based. Mr. Bergman replied that the guide is available in hard copy and also can be downloaded from the Web site.

- Dr. Regunathan asked whether the response to the CCR writer was from small or large systems. Mr. Bergman replied that the response was from small systems and state field-staff.

- Dr. Regunathan asked how EPA is going to measure the success of the training and technical assistance. Mr. Bergman replied that EPA is starting an effort to look at how to measure success. Just because someone went to a training and is in compliance does not mean that the training had any effect. The system may have been in compliance anyway. Dr. Regunathan suggested having a survey at the end of the e-learning. He said that it would be a good way to measure success. Mr. Bergman said that EPA is still exploring its options.

- Mike Baker commented that he continues to be impressed with the quality of tools being produced. He said that the amount of materials available is overwhelming. States would have to have full-time employees just to understand what tools are out there. He feels that it is extremely difficult to get a handle on what is available, what is the best to use, and to justify hiring someone to conduct staff training. Mr. Baker does not feel that EPA should move away entirely from face-to-face training. EPA needs to give training geared towards state field staff who are trying to get across new rules. He suggested having the training be regional. He also feels that additional training is needed for technical field staff. He said that EPA needs to present a better organization of what is available out there by rule and by system type, and somehow make it easier to get access. Mr. Baker

asked whether Mr. Bergman knew how many people have taken advantage of the guides. Mr. Bergman replied that they have had quite a run on the quick reference guides. He said that EPA sent out over 1,000 of the longer compliance guides. He said that EPA needs to track that, and it would also be a great way to track success. EPA is hoping to take the Rule Wizard and figure out a way for states to modify it to create a monitoring schedules for small systems. States can then look at that information and reduce monitoring as necessary.

- Mr. Florquist asked whether EPA really had the data to make the system pie chart he presented. Mr. Bergman replied that EPA has data from the ASDWA reports that were released last year and the year before. Mr. Florquist commented that it would better to present the percentages in the pie chart. Mr. Bergman replied that the percentages would be state-specific, so EPA would have to develop 50 pie charts.

- Mr. Florquist said that empowering small systems was discussed at colloquium he attended last week. The attendees at the colloquium felt that "enabling" would be a better term than "empowering." Mr. Bergman asked whether that was a recommendation of the small systems. He then said that he tends to think of "enabling" as a less-positive term. Mr. Florquist replied that small systems felt that "enabling" was more positive.

- Dr. Spath said that the technical assistance and training tools are very useful because a large number of rules are very complex. He asked whether radionuclide waste disposal is going to be easily dealt with and how EPA is looking at that issue. Mr. Bergman replied that for most of the systems, arsenic waste disposal should not be a problem. EPA will have in the next few weeks a draft document on radionuclide waste disposal. EPA has not found many case studies on this, so it will be more difficult.

- Ms. Surgeon said that technical assistance is not a single event, but rather an ongoing thing. She felt that it would be very difficult to create a pie chart or measure technical assistance. She would like to see another presentation of this technical assistance to the Council. She felt that it would be good for the Council to learn more about all of the tools. Mr. Ramaley commented that in the past, the Council has discussed future activities on the last day of the meeting. He said that there would be some time on Thursday to bring this topic up as a potential agenda item for the November 2004 meeting.

- Ms. Dougherty said that, before Thursday, Council members should think about whether they want more presentations of information or whether they want EPA to simply send them the information.

VI. 30th Anniversary of the Safe Drinking Water Act - Ms. Charlene Shaw

- The 30th anniversary of SDWA is December 16, 2004. Throughout the year, EPA will be producing products to keep the public informed by releasing a:

    - 30th anniversary Web page.
    - Series of fact sheets on SDWA.
    - New animated version of the landscape poster of a watershed.
    - New and improved Kid's Page.
    - Health-care provider video (EPA & CDC).

- EPA's new initiative is to launch the HydroExpress, an educational learning center that will travel the country over the next 5 years. The launch will take place on December 16, 2004 in California. Two sites are being considered for the launch: the Children's Discovery Museum in San Jose and Downtown Disney in Anaheim.

- The HydroExpress is a traveling learning center to instill the importance of drinking water in the minds of thousands of children, their parents, teachers, and civic leaders. The Center is retrofitted into a semitrailer.

- EPA is initiating the HydroExpress as a way to celebrate the 30th anniversary of SDWA; to forge partnerships with some traditional groups and some new, non-traditional groups; and to bring national media awareness to the importance of protecting drinking water.

- EPA will:

    - Award a planning grant to the Water Systems Council.
    - Provide technical expertise to plan 6 or 7 interactive stations within the Center.
    - Issue a press statement announcing the award and partners.
    - Guide the exhibit theme to ensure that EPA's message is reinforced.

- HydroExpress Partners include:

    - USEPA/Office of Water.
    - WSC.
    - Groundwater Foundation (GWF).
    - Acts of Creation (AOC).

- The HydroExpress Board will be a high-visibility group with celebrities, the EPA Administrator and the Acting Administrator for Water. The HydroExpress science advisory panel will be a group of technical advisors including AWWA, Association of

Metropolitan Water Agencies (AMWA), National Association of Water Companies (NAWC), Natural Resources Defense Council (NRDC), academics, and consultants.

- What will the HydroExpress partners do?
    - WSC will be the project lead.
    - GWF will provide technical, educational expertise and serve as "road managers."
    - AOC will provide all production needs.
    - Partners will all help to recruit sponsors and raise funds.
    - Partners will use their extensive networks to gain support and help schedule stops and events.
- Who is already interested?
    - Scholastic.
    - United Nations.
    - Ogilvy Public Relations.
    - Tetra-Tech.
    - Parsons Engineering.
    - Am Trex (trucking company).
    - Target.
    - Toys-R-Us.
    - San Manuel Band of Mission Indians.
- Because the HydroExpress tour will begin in the winter, the center will first travel through the South. EPA envision stops at major meetings and conferences, Indian reservations, water festivals, the 2005 Boy Scout Jamboree, state fairs, and national monuments.
- How is EPA doing?
    - EPA has awarded the grant to WSC.
    - EPA is recruiting sponsors.
    - The partners are establishing a Science Policy Board to review materials and designs.

  - EPA is identifying stops.
  - EPA is establishing a HydroExpress Board and gaining commitments to help promote the tour. EPA is preparing for the launch of the Web site and EPA information release.
  - EPA is designing the interior of the truck.

- Commitments so far:
  - HydroExpress partners are committed to getting the project going, developed, and on the road.
  - WSC has acquired all domains and researched trademark infringements.
  - Ogilvy PR firm is committed to aid in advertising the tour.
  - The United Nations has committed to hosting the HydroExpress in Manhattan.
  - AOC is developing the Web site.
  - The United Nations would like to take the tour international for 1 year.
  - Scholastic has committed to provide advertising to schools within a 10-mile radius of tour stops.
  - Scholastic is willing to raise sponsor money to produce a teacher and classroom kit for the tour.

- The HydroExpress Web site address will be www.HydroExpress.org. The Web site is due to launch in June 2004.

Questions and Comments

- Dr. Head commented that there is a whole network of children's museums. She felt that EPA should try to have the children's museums sponsor the HydroExpress.

- Ms. Surgeon commented that she was very happy to hear about the HydroExpress. She said that this national campaign seems very cost effective. She said that this is much better than the television campaign she was envisioning. She thanked Ms. Shaw for presenting this information to the Council.

- Mr. Wheeler suggested that EPA contact local water utilities. He felt that EPA could get sponsorships from the utilities pretty easily. Mr. Florquist agreed with Mr. Wheeler. He said that his utility does a great deal of community outreach.

- Ms. Surgeon asked whether EPA is planning to get more semi-trailers. Ms. Shaw replied that EPA is looking at the possibility of getting another one. She does not feel there is any way that one vehicle could cover all the stops they want to make in the United States.

- Ms. Surgeon suggested that the HydroExpress be regional. She said that the drought in the southwest has been occurring for the past few years. She felt that covering these kinds of regional issues would be great. Ms. Shaw replied that EPA is envisioning changing software at the learning stations for each stop.

- Mr. Betkoski asked if EPA will coordinate with state contact agencies when it comes to spreading the word about the HydroExpress. Ms. Shaw replied that wherever the HydroExpress goes, EPA will contact utilities and agencies in those states.

- Mr. Ramaley said that each AWWA section has a public relations committee that would have the contacts EPA needs to publicize the HydroExpress in each state ahead of time.

- Mr. Florquist asked whether EPA was going to have some support vehicles to go along with the HydroExpress. Ms. Shaw replied that EPA is looking into getting a van. The man who provided EPA with the semitrailer has offered to give the Agency a van.

- Mr. Ramaley gave one last reminder to those members of the public interested in commenting during the public participation portion of today's session to sign up to speak.

SECOND BREAK (Recess 2:58 p.m. to 3:20 p.m.)

VII. Taking Another Look at Lead - Ms. Cynthia Dougherty

- EPA has established an action level of 15 parts per billion (ppb) instead of a maximum contaminant level (MCL) for lead.

- All systems that serve more than 50,000 persons are required to put in corrosion control. Small systems are required to put in corrosion control if the action level was exceeded in initial sampling. If a system had a single sample above the action level, it would not be required to issue public notification and conduct more sampling.

- The D.C. Water and Sewer Authority (WASA) worked to optimize corrosion control during the 1990s through pH adjustment. In November 2000, a change to chloramination

from free chlorine reduced disinfection by-product levels and risks by 47 percent or more. D.C. WASA reported no evidence of water chemistry changes after 6 months of monitoring following the transition to chloramines.

- Problems with elevated lead levels started to be documented from early 2001 to the present. The first reported incident to EPA of elevated levels was in August 2002.

- D.C. WASA tried to opt out of service-line replacement by testing lead service-lines. The results of over 4,000 tests were reported to EPA in October 2003. Two-thirds of the tests were above the action levels, and some levels exceeded 300 ppb.

- Notification letters to customers were reported on by the Washington Post on January 31, 2004. There have been almost daily news reports since then.

- There have been Congressional and Washington City Council hearings about the lead situation.

- EPA chairs an Expert Working Group and convened an Independent Peer Panel to oversee the water suppliers.

- The original causal factors are still not confirmed. Zinc orthophosphate addition will begin in June 2004 to a small part of the distribution system that can be broken off from the rest of the system. If D.C. WASA sees no problems with the addition, it will add zinc orthophosphate to the rest of system in July 2004.

- Homeowners with high lead levels in their water supply have been provided with filters. By April 24, 2004, sampling had been done at more than 10,500 homes. Lead levels were above 15 ppb in 27 percent of the first-draw samples and 25 percent of the second-draw samples.

- Free tests of blood-lead level have been offered. CDC has been working with the Department of Health to evaluate blood-level samples historically and match them with the locations of lead service lines provided by D.C. WASA to determine whether there is a difference in trends. CDC produced a report in "Morbidity and Mortality" about a month ago.

- EPA received questions from Congress and the press about whether lead in drinking water is a problem only in D.C. or nationally. EPA cannot currently answer that question, based on the available data.

- EPA is undertaking a number of activities to inform itself on the answer to that question and to determine whether there should be changes in the LCR. The Agency is:

- Looking at the review of compliance and implementation.
- Holding expert workshops to collect information.
- Talking to states about the status of monitoring in schools.

- EPA is asking:
  - Are there issues with simultaneous compliance that have not been addressed?
  - Is the LCR stringent enough?
  - Should EPA have an MCL for lead instead of an action level?
  - Should EPA change the public education and notification requirements, particularly where there are individuals whose households have high lead levels?

- In the review of compliance and implementation, EPA must answer three questions:
  - Is there a national problem of elevated lead levels? Do a large percentage of the population or a large number of systems fail to meet the lead action level?
    - EPA is collecting information from states for 90th percentile levels required to be reported to the Safe Drinking Water Information System (SDWIS). EPA is requesting updates for data that initially were complete. Summaries of the findings will be released about 2 weeks following deadlines (more than 50,000 were released May 3, 2004).
    - Most large systems report maximum 90th percentile levels below 15ppb. Twenty-two large systems had lead levels greater than 15 ppb for one or more monitoring periods since 2000.
  - How well has the rule worked to reduce lead levels over the past 12 years, particularly in systems that had demonstrated high lead levels in the initial rounds of sampling?
    - Initial rounds of monitoring in 1992-1993 found that about 169 large systems exceeded the action level. In 2003, eight systems exceeded the action level, so it seems that the LCR is working.
    - EPA will review histories of systems that initially exceeded the action level to see how those systems addressed the issue. EPA will use that information to develop case studies on implementation and lessons

learned. One example is St. Paul, MN, where treatment changes were made three times before the system found corrosion inhibitors that worked.

- Is the rule being effectively implemented, particularly with respect to monitoring and public education requirements?
  - EPA will review water utilities to determine whether they are meeting LCR requirements, including monitoring and reporting, public education, and lead service line replacement.
  - EPA will also review state implementation, including treatment changes, enforcement, and reporting.

- EPA plans to hold expert workshops to exchange information with a focus on challenges, problems, and strategic solutions. EPA held two workshops in St. Louis from May 11-13, 2004. One was on simultaneous compliance, and the other was on monitoring protocol. Suggestions for future workshops include public education, lead service line replacement, monitoring for lead in schools, and getting the lead out of plumbing fixtures.

- EPA's Acting Administrator, Ben Grumbles, sent a letter to all state environmental health agency directors in March 2004 asking about programs to monitor for lead in schools and day-care facilities, and how EPA could support voluntary efforts. Responses were received from almost all states and are being summarized. States largely focus on schools that are CWSs or nontransient noncommunity water systems (NTNCWSs).

- The Lead Free SDWA was introduced on May 4, 2004 and amends SDWA to require revision of the LCR. The situation in D.C. is going to have an effect across the country in terms of Congressional interest and making possible changes to the law.

Questions and Comments

- Mr. Young said that this event gives a black eye to the whole water industry. He asked whether Ms. Dougherty thought the issue is more about non-compliance, or whether once non-compliance was recognized there was more finger pointing. He asked whether it would have been as big a deal if someone had stepped up and taken responsibility. Ms. Dougherty replied that the two big lessons EPA and water utilities have learned are: (1) how to make sure to get the word out when there is a situation that could have a health impact, and (2) how to quickly do something about it. Mr. Young asked how anyone can quickly do something about a situation when nobody will take responsibility.

- Ms. Thorp said that when the lead problem arose, she felt embarrassed to be working in the water industry in the D.C. area. She said that once the situation got out of hand, many things were not done right. There could have been a better job done in terms of telling people what they needed to do. She feels that the lessons learned would be very helpful to have and that helping think through public notification again would be very important.

- Mr. Taylor asked whether the populations in the chart of statistics since 2000, used in Ms. Dougherty's presentation, represent people affected by lead or the populations of the utilities. Ms. Dougherty replied the populations of the utilities. Mr. Taylor added that his impression was that lead in drinking water is not a national issue and many utilities would support EPA's current position.

- Dr. Regunathan asked, if the switch from chlorine to chloramine started the lead problem, why would it not be a real problem in so many other communities where the switch has taken place. Ms. Dougherty replied that EPA does not have the answer to that question.

- Mr. Young said that his company owns 100 systems on chloramines. There is no scientific correlation between the switch from chlorine to chloramines and an increase of lead in the water. He feels that this is scaring the world about simultaneous compliance. He said that the water industry would stand behind EPA on simultaneous compliance because it is not the cause. He said that the water utilities should not go out to the public with statements until they have facts to back it up.

- Dr. Regunathan asked whether all the people who have lead service lines in any city know that they have lead service lines. Ms. Dougherty replied that it varies by city. She did not know. D.C. WASA does not know where all its lead service lines are. They know where a large number of them are, but not all of them.

- Dr. Regunathan is concerned that the filters provided to homeowners are not certified for lead levels above 15 ppb. Ms. Dougherty replied that the homeowners were instructed to flush for 10 minutes to lower lead before going through filters. Dr. Regunathan suggested that homeowners not rely on those filters because the filter will soon become ineffective at those high lead levels. He suggested looking to reverse osmosis. Ms. Dougherty replied that EPA and D.C. WASA are not looking for a permanent fix, just a fix for a few months.

- Dr. Spath said that this is a national problem from a perception standpoint. He said that everybody in San Francisco is wondering when lead levels will go up in the drinking water. He feels that the conversion to chloramines there has gone very well. He hopes that EPA and utilities do not put a lot more resources into lead in drinking water problems. He feels that lead is a problem, but it is more of a problem from other exposure routes. He said that lead education should be holistic rather than focus on lead

exposure from drinking water. Ms. Dougherty said that one lesson EPA has learned from this situation is that it needs to be able to answer questions such as whether a problem is national. EPA hopes that it will not be asked a question like that again without having an answer. EPA needs to be able to identify whether it has a national problem right away.

- Mr. Schwartz said some recent research indicates that there are other disinfection by-products being produced by chloramination that may be potentially more hazardous than chlorination by-products. Ms. Dougherty replied that, even with chlorination, there are hundreds of disinfection by-products. The research project identified detectable levels of those disinfection by-products, but not at levels of health concern.

- Mr. Baker asked whether the blood-level sampling has found any correlation between blood lead levels from exposure to water specifically and not from other exposures. Ms. Dougherty replied that the trends are being examined and that there are a lot of caveats in the data.

- Mr. Baker asked whether the Council could get a list of the systems that had high lead levels in the initial rounds of testing in 1992 and 1993. Ms. Dougherty replied that the list of systems that had high lead levels in the initial rounds of monitoring will be available, but EPA is still trying to compile the list.

- Mr. Baker suggested that EPA work with Congress to educate its members about the rest of the drinking water program and the difficulties that states and systems are having implementing regulations and SDWA. He felt that what happened in D.C. may be indicative of the larger problem of lack of resources. Systems and states had lead low on their list of concerns to begin with.

- Ms. Thorp agreed with Mr. Baker. She asked how a person involved in drinking water can exude confidence without saying things they do not know. She felt that it might have been better if D.C. WASA had said earlier that it did not really know where the lead service-lines are. The utility said it knew where the lines were when really it did not know. When it all comes out people lose confidence. She is afraid that people will rush to bottled water. She said that the Council needs to think about it in the sense of people who are scared.

- Dr. Spath said that his point was that resources should not be diverted to the water sector when there may be more important areas to reduce exposures such as soils and paint.

- Mr. Florquist commented that in many communities, utilities are not responsible for putting in lead service-lines, but they are being charged with putting in new lines.

- Mr. Schwartz said that he heard of some reports where lead service-line replacement has not shown dramatic improvements in lead level. He said one example is Cincinnati. Ms. Dougherty replied that Mr. Schwartz was referring to a presentation that Cincinnati gave last week stating that replacing only the part of the service line that it owned did not yield as significant a change as replacing the whole service line. Even when replacing the entire service line, it would take a while to get the lead level down inside the home, and there would still be the issue of lead fixtures in the home. Mr. Burneson added that Cincinnati said that a full service line replacement does not completely eliminate lead.

- Mr. Ramaley said that corrosion control is as much art as it is science. He said that factors such as pH and temperature effects must be considered. What happened in D.C. may have been a result of a number of concurrent changes. D.C. WASA chose not to use a corrosion inhibitor when it switched to chloramines. He felt that most people were too quick to say that chloramines were the main cause. He encouraged some degree of restraint in making conclusions. He said that a number of systems removed lead service lines in the 1980s, so just the anticipation of the rule prompts people to take action. Therefore, he felt that EPA's assessment of the LCR by looking at lead service-lines in 1993 to 2001 might not be a correct assessment. Mr. Ramaley asked whether the requirements of the utility to replace the homeowner's service-line was still in place in the currently proposed legislation. Ms. Dougherty replied that the requirement was still in place.

- Dr. Regunathan asked why anyone would allow brass material with 8 percent lead. Ms. Dougherty replied that the 1996 SDWA amendments defined lead-free for plumbing and then defined lead-free for fixtures as 8 percent. Dr. Regunathan commented that it was a bit confusing. Ms. Dougherty said that one of the requirements of the LCR is that if a system makes treatment changes separate from LCR, it needs to go back and look to see how that affects corrosion. Dr. Regunathan said that it depends on how the sampling has been done. Ms. Dougherty replied that there was some question whether the sampling in D.C. could have shown something.

VIII. Public Participation

Public Comment by Mr. Randy Adams, RCAP, Inc.

- Mr. Adams said that he was at the Montana seminar which Mr. Florquist attended. Graciela Ramirez-Toro was also present at the seminar and asked him to present some information to the Council.

- Mr. Adams said that RCAP thinks there has been a lot of progress in technical assistance, but when they talk to others and Congress there seems to be confusion about training and

technical assistance. He said that people need to be told that training is not a single event. It includes follow-up and reinforcement.

- Mr. Adams said that RCAP also sees a transfer of knowledge needed across generations. Training and technical assistance are not limited to operators. Training and technical assistance need to be provided to managers, board members, first responders, and the general public. Due to the war in Iraq, many people in emergency response are not in the United States; they are serving in the military overseas. He asked how to make sure information gets passed along if they are not present at the training. He said that training and technical assistance for capacity building are never over. They are continuing processes.

- Mr. Adams said that most of the things encountered in system failure are due to human error. He feels that training should focus on cooperation and collaboration.

- Mr. Adams said that only 20 percent of small systems have access to the Internet. He feels that in addition to Web casts, localized mentoring is still needed. Without on-site hand-holding or mentoring, the systems will not get the full application of the Web cast. While manuals and materials are important, mentoring on how to use them is needed.

- Mr. Adams said that another issue is questioning the multiplicity of development systems. He feels that it is not duplication; there simply needs to be more coordination.

- Mr. Adams felt that EPA needs to look at a different analysis to make sure assistance is being applied. He said that systems may be self-determining, but not self-sufficient.

- Mr. Adams said that RCAP is constantly asked, "Did we already fund that?" He said that training and technical assistance are not one-shot deals.

- Mr. Adams ended with an anecdote from Bill Cosby. When asked if the glass is half empty or half full, Mr. Cosby's mother replied, "It depends on whether you are drinking or pouring."

Public Comment by Mr. Ed Thomas, NRWA

- Mr. Thomas attended the St. Louis workshop on the LCR. He said that one of the presentations by Jack DeMarco from Cincinnati showed that with absolutely no work and no replacement of lead service-lines over 12 months, Cincinnati got down to 12 ppb. When they did a partial replacement of lead service-lines, they got down to 7ppb. When they did a full replacement of lead service-lines, they got down to 3 ppb. The point is that flexibility is the key. He said that simultaneous compliance is so difficult that systems need more flexibility to work within that.

- Mr. Thomas said that another issue at the workshop was disinfection by-products. He said that in a recent study ORD identified which of the hundreds of potential disinfection by-products are the most potent. ORD then studied those disinfection by-products. Based on the studies, ORD found that using chloramination caused more disinfection by-products at higher concentrations than using chlorine. Mr. Thomas said that this should be a red flag that we have all of the pieces before we push towards one type of treatment.

Questions and Comments

- Mr. Young said that he thought Jack DeMarco was supporting the idea that if systems treat water correctly, they can have lead service lines and still reduce lead levels. If the water is treated correctly, removing lead service lines may not be necessary.

The Council adjourned at 4:45 p.m., to reconvene at 8:30 the following morning.

WEDNESDAY, MAY 19, 2004

IX. Introduction and Review of Day One

Mr. Ramaley reconvened the meeting at 8:40 a.m. by giving a short summary of the previous day's presentations. He then introduced Mr. Mike Shapiro, EPA Deputy Administrator for Water.

Welcome - Mr. Mike Shapiro

- Mr. Shapiro thanked the Council for inviting him to this meeting.
- Mr. Shapiro introduced himself by describing the number of positions he has held within EPA.
- Noting the great history of interaction between the Office of Water and NDWAC, Mr. Shapiro commented that the NDWAC is likely the most effective consultation group associated with EPA. He said that the recommendations and advice that the Council provides EPA are very valuable and important, especially on important issues such as homeland security and wastewater infrastructure security. Mr. Shapiro said that he is looking forward to the results of the deliberations at this meeting.
- Mr. Shapiro provided information regarding EPA's discussion of FY 2006 activities, and he mentioned EPA's critical responsibilities in the areas of security and wastewater. He reiterated those issues highlighted in the strategic plan, specifically communication and outreach and outcome measures. He hopes that in the future the Council will advise EPA on measuring the success of its programs and evaluating their effectiveness.

Questions and Comments

- Mr. Ramaley thanked Mr. Shapiro for taking the time to participate in this meeting.
- Mr. Ramaley remarked that Mr. Shapiro's comments were very much in tune with Council discussions. It seems that all members of the Council are interested in developing and evaluating performance measures. Because the Council is a good cross-section of stakeholders, it is also an ideal group for discussing these measures.
- Mr. Baker asked Mr. Shapiro and EPA to evaluate UIC grants to state programs. These programs have had the same level of funding for the last few years. It is important to note that Class V wells are a significant threat to ground water resources and public drinking water supplies. Mr. Shapiro replied that the focus of program evaluation has been on

results and how efficiently the programs are operating. The benefit of this kind of review is that it provides a detailed look at programs and identifies areas of need. The UIC program is going through a review this year, which will help in the evaluation of the program. The UIC program has not received much in the way of new resources for a number of years, but Mr. Shapiro said he thinks that the evaluation of the program will lay the groundwork for arguments in favor of keeping and funding the program. He warned that this may not be the year to look for funding increases in any programs because funding is very tight.

- Ms. Thorp emphasized that, when considering funding, all of the programs in the Office of Water are important, not just the drinking water programs. The measurement of outcomes is particularly difficult in drinking water because the outcomes are not easily determined. She asked Mr. Shapiro to continue to include the Council when there are issues for which its input would be helpful. Mr. Shapiro responded that it would be helpful for the Council to provide recommendations for future work. In the drinking water area, most of the benefits will be directly related to public health. One of the side benefits for increased attention to monitoring for potential terrorist threats and related illness is a more robust system to track and identify various types of illness. Having better tracking systems will also help EPA measure success.

- Mr. Schwartz thanked Mr. Shapiro for coming to the meeting and reiterated a point made in Tuesday's discussion regarding technical and onsite assistance. He emphasized that success in many of the outcomes that EPA is measuring would not be possible without onsite assistance and training, and he hopes that those efforts will continue. Mr. Shapiro agreed and said that given the demographics of the water supply in this country, EPA relies on assistance organizations to help facilitate communication. EPA is very appreciative of the outreach and training efforts of those organizations. These types of programs are able to demonstrate how they are contributing to the challenge of achieving safe drinking water. In the budget process, it is clear that without the hands-on approach, it will be very difficult to meet the goal of providing safe drinking water.

- Dr. Spath was concerned that there is too much focus on performance measures and trying to tease out public health benefits and applying those outcomes to water. He urged EPA to try to identify realistic performance measures, not to spend so much time and money on evaluating the programs, and to spend more time carrying out the programs. Mr. Shapiro replied that EPA is working to measure essential metrics and to look at what really matters. EPA will always have to temper the focus on results with some hard judgments about how to effectively and efficiently manage its programs.

- Mr. Ramaley noted the tendency to become confused about what performance measures are essential. They should be indicators of how well the Agency is functioning and

achieving its goals. The Council might be able to provide insight into that, drawing from a cross-section of perspectives.

- Mr. Ramaley again thanked Mr. Shapiro for coming to the meeting. Mr. Shapiro replied that it was a pleasure and he looks forward to coming to more Council meetings.

Mr. Ramaley introduced Mr. Ephraim King to begin the CCL discussion.

X. Contaminant Candidate List (CCL) Listing Process - Mr. Ephraim King, Ms. Lynn Thorp, Dr. Jeff Griffiths

CCL Background and Overview of National Academy of Sciences Findings - Mr. Ephraim King

- Mr. King explained that the 1996 SDWA Amendments set up a three-part process: (1) Congress nominated priority contaminants to evaluate for regulation, (2) EPA will complete a 6-year review of all regulations, and (3) EPA will develop a process to choose priority contaminants to evaluate for regulation (e.g., the CCL). The CCL will provide the framework for $50 million worth of research, data gathering, and regulation per year.

- Mr. King outlined the statutory requirements of the CCL, including the three criteria for rule development, timeline for CCL development, and regulatory determinations. The CCL does not include the regulatory determination portion of the process. Regulatory determination can result in either a decision to regulate, or not to regulate, a contaminant.

- Mr. King showed a graphic representation of the stages in the regulatory process.

- Mr. Young asked about the criteria for the regulatory determination of no rule and whether those criteria are considered in the CCL process. Mr. King replied that research on health effects and occurrence, for example, all figure into the final determination. These criteria are also considered during the contaminant candidate list classification process (CCL CP). It is important to emphasize that we are not dealing with the regulatory side of the process today; the CCL is upstream of regulatory determinations.

- Mr. King detailed the process that EPA went through in the first CCL (CCL1). Congress put forward the list, and there were separate processes for chemical and microbial contaminants. Chemical contaminants were selected from EPA program lists and culled through selection criteria concerning occurrence and health effects. The microbial contaminants were chosen through expert review of 30 potential contaminants. The final CCL was published in 1998 and comprised 60 contaminants: 10 microbes and 50 chemicals.

- EPA then asked the National Academy of Sciences (NAS) to review the process and provide recommendations for improving it. There were three charges to the NAS review:
    - Develop a sound approach for regulatory determination for contaminants on the CCL.
    - Convene a workshop on emerging contaminants and the type of information to support future decisions.
    - Create a scientifically sound approach for developing future CCLs.
- The NAS recommendations for the CCL included three steps: a universe of potential drinking water contaminants, a coarse screen to the Pre-CCL (PCL), and finally the CCL list of contaminants that occur or have the potential to occur in drinking water and that cause or may cause adverse health effects.
- Ms. Beardsley asked why the screening criteria were applied only to the PCL and not to the entire universe of contaminants. Mr. King replied that because the universe of potential contaminants is so large, for many of those substances there are no data or information. One of the NDWAC working group recommendations is that a contaminant can be nominated to move to the PCL if there is new concern about that substance.
- NAS provided a report to EPA in 1999 outlining its conclusions:
    - Significantly expand the universe of potential contaminants.
    - Use a classification approach to ensure replicable results.
    - Scientific complexity can still be transparent.
    - Classify contaminants based on pattern recognition (i.e., neural networks), not rule-based methods.
    - Recommend that chemicals and microbes be considered together (rather than in separate processes).
- For microbes, NAS recommends new molecular/genetic methods to identify microbiological contaminants as part of a new approach. The evaluation of microbes based on the similarities of their genetic attributes (Virulence Factor Activity Relationships [VFARs]) is a new approach similar to Quantitative Structure Activity Relationships (QSARs) for chemicals.

- Mr. King mentioned how deeply impressed he was at the depth, scope, and logic of the NAS recommendations. They pose a challenge to EPA. For help implementing these recommendations, the Council convened a working group.

NDWAC Working Group Report and Recommendations - Ms. Lynn Thorp, Dr. Jeffrey Griffiths

- Ms. Thorp reviewed the specific charge to the working group: evaluate recommendations made by the National Resource Council, including methodologies, activities and analysis, and make recommendations for an expanded approach to the CCL listing process for the purpose of protecting public health. This may include, but not be limited to, advice on developing and identifying:
    - Overall implementation strategy.
    - Classification attributes and criteria (and methodology that ought to be used).
    - Pilot projects to validate new classification approaches (including neural network and other prototype classification approaches).
    - Demonstration studies that explore the feasibility of the VFAR approach.
    - Risk communication issues.
    - Additional issues not addressed in the NAS report.
- Ms. Thorp discussed the guiding principles that the working group agreed to:
    - Public health is the first and foremost consideration.
    - CCL process should be built on the best available science.
    - The CCL process should reflect the important role of expert judgment.
    - Process should be systematic, open, accessible, and well documented.
    - Equal rigor to chemical and microbial agents, consistent with the data available.
    - Opportunities for public involvement at all key points in the CCL process.
- The NAS report had 53 recommendations, and the NDWAC working group came up with 56 recommendations. The working group provided recommendations and specific guidance on a few key NAS recommendations, including:
    - Scope of the CCL "universe."

- Screening the universe.
- Classification algorithm to select a CCL from the PCL.
- Consider both chemical and microbial contaminants in the CCL process.
- Role of expert judgment in the CCL process.
- Transparency throughout the CCL process.
- Surveillance and nomination process for potential contaminants to support the CCL process.
- Consider data quality.
- Develop a framework to incorporate genomics and proteomics, including the NAS's VFAR concept, into the CCL process.

- Ms. Thorp then discussed chapter 2 of the report, which covers the recommendations of the working group and identifies key overarching issues. The working group endorsed the NAS's thinking on transparency. The chapter also outlines the parallel processes for chemicals and microbes. The working group also recommended using an iterative approach to adapt the CCL process as knowledge is acquired.

- Ms. Thorp explained that the process recommended by the NDWAC working group is the same basic process laid down by the NAS. Steps from the universe to PCL to CCL are sequential, and the nomination process works throughout the process, providing an alternate pathway on to the CCL. The working group envisioned a formal expert review at the end of the process in addition to the review occurring throughout the process.

- Expert judgment is important throughout the process. Milestones where expert judgment is important include reviewing the screening criteria and their application for CCL universe to PCL; during development of the classification process from the PCL to the CCL; post classification process when reviewing the quality of information and evaluating the prioritized list of contaminants; and the results and draft list prior to proposal in the **Federal Register**.

- Surveillance and nomination provide an alternate pathway into the process. The CCL process is not perfect, so there are some potential contaminants that may not pass certain criteria set up in the screening processes, but still cause some concern. The working group recommended that EPA (1) establish an active surveillance process to identify

these new and emerging contaminants and (2) coordinate with other program offices to share and gather information. The working group also recommended that EPA establish a nomination process for agencies and stakeholders to provide input into the CCL.

- The working group focused on information quality concerns and recognized that when going through the CCL process, the quality of data for contaminants should be characterized in some way. The working group recommended:
    - When establishing the CCL universe, it will be possible to "tag" the agent (contaminant) with a reference to the data source, nature, and type of data.
    - From the universe to the PCL, it will not be feasible to perform an information-quality analysis specific to a contaminant, but it will be possible to provide a richer "tag" for each contaminant.
    - From the PCL to the CCL, consider the information quality "tag" more full at this stage; EPA should consider developing an information-quality classification algorithm and using it to create the CCL.

FIRST BREAK (Recess 10:15 a.m. to 10:40 a.m.)

- Dr. Griffiths resumed the presentation with a discussion of chapter 3: Microbial Approaches.
- Dr. Griffiths noted that when thinking about microbes and chemicals, the information we have is different, and the assumption is that there are fewer microbes than chemicals.
- Dr. Griffiths outlined the approach for microbial contaminants:
    - The total microbial universe may consist of all microorganisms.
    - The Microbial CCL Universe may consist of all human pathogens (i.e., organisms known to cause disease in humans).
    - The PCL may consist of all organisms in the Microbial CCL Universe that may plausibly occur in and be transmitted by drinking water.
    - Surveillance and nomination provide an alternative pathway for entry into the CCL process for new and emerging microbial contaminants.
- Dr. Griffiths explained that the recommendations for screening to the Microbial PCL should: (1) include recognized human pathogens that are known to be associated with

source water, recreational water, and drinking water; (2) that biological characteristics should be recognized as legitimate criteria for screening pathogens and that the list of pathogens inhabiting the Microbial CCL Universe should be screened for biological characteristics promoting or mitigating against survival and transmission in water; and (3) that organisms associated with rare infections will be excluded from the PCL unless clinical, epidemiological, or similar information implicates them as the cause of waterborne disease.

- Dr. Griffiths asked the Council to consider adding "potential or known" to one of the recommendations pertaining to screening microbes for inclusion on the preliminary CCL (PCCL). The revised recommendation would read: Exclude organisms associated with rare infections from the PCCL unless clinical, epidemiological, or similar other information implicates them as the *potential or known* cause of waterborne disease.[Italics added for emphasis.] EPA should increase surveillance for infections caused by these organisms, especially in sensitive subpopulations.

- The nomination and surveillance process provides an important pathway to the PCL if new information or a waterborne disease outbreak causes concern about a new or emerging pathogen. This process is very similar to what is proposed for chemicals.

- Dr. Griffiths discussed the working group's consideration of VFARs, including two pilot projects. He mentioned that culturing of organisms is too limited to provide information about new contaminants. Genomics and proteomics are powerful tools, but the technology is unproven. Therefore, the working group recommends that EPA monitor the progress of these technologies and integrate them into the CCL process when feasible.

- Ms. Thorp continued the discussion of the report with a summary of approach for chemical contaminants. Recommendations include:

    - The Chemical CCL Universe should include agents that have demonstrated or potential occurrence in drinking water or demonstrated or potential adverse health effects.

    - The Universe should be screened on a limited set of available data elements that represent health effects and occurrence to select the PCL.

    - Contaminants that are screened to the PCL will be those with data elements for both health effects and occurrence

- Ms. Thorp explained that the Chemical CCL Universe should be inclusive and serves the public health protection goal. The surveillance and nomination processes will still be at work at this point in the process.

- Ms. Thorp showed the Venn diagram from the report and explained that the PCL is at the intersections of the four circles. She mentioned that the process is not perfect and may not catch every contaminant of concern, but the SDWA already includes an accelerated process for regulation outside of the CCL to ensure that public health is protected.

- Mr. Young asked whether more chemicals are not going to make it to the PCL because of lack of data or because the data screens them out? Mr. Ramaley noted that, in this process, there is no point in considering chemicals without any data. Dr. Griffiths added that many in the working group felt that gathering agents for the universe was a very inclusive process, but that at some point it is important to apply stringency so that you apply more rigor to the process. Agents that have information via QSARs or VFARs may make it through the first few gates, and then might be candidates for additional research, but they would not continue through the CCL process.

- Ms. Thorp noted that the working group did not provide specific recommendations on screening to the PCL, just guidance for how it should be done once a process is developed.

- Ms. Thorp discussed the PCL to CCL process. Chapter 5 of the report describes how to assign attributes to contaminants and looks at what classification approaches to use. The working group did not recommend a particular algorithm; instead, it provided guidance on the important features of the algorithm that is chosen.

- Quantifying attributes was an extremely complex discussion that the working group held. The group was unable to reach consensus on how to score all five attributes, but provided recommendations on what should be considered while scoring:

    - Potency and severity should be considered as key predictive attributes for health effects.

    - Prevalence and magnitude should be considered as key predictive attributes for occurrence.

    - Persistence and mobility should be considered as characteristics that might predict possible occurrence if direct measures of prevalence and magnitude were not possible.

    - EPA should explore alternative approaches to scoring, including using actual values when scoring and evaluating their use in the classification models.

- Ms. Thorp discussed the classification model approaches and explained that the working group felt that any model should be able to handle a large number of contaminants. The working group recommended:

    - EPA should pursue development of a prototype classification algorithm for selecting contaminants for the next CCL, including rule-based methods, facilitated discourse, and expert panels.

    - Experts should be involved throughout the process of narrowing a PCL to a CCL.

    - Tools should be used to help prioritize contaminants for the CCL, but the final decision on whether a contaminant should be listed should be made by experts after reviewing the data.

    - Model development should be as inclusive as possible.

    - The process should be iterative.

    - EPA should use another approach for selecting CCL contaminants in the near term if there are insurmountable difficulties in the model-development process.

- Ms. Thorp discussed training data sets and their importance for calibrating and verifying a model that is used. Mr. Ramaley added that determining the training data set is a very important step in the process.

- Ms. Thorp summarized the working group's report recommendations:

    1. Prototype classification methods should be evaluated.

    2. Overarching principles to develop future CCLs are:

        – Transparency and public participation.

        – Key milestones to evaluate progress and expert involvement.

        – Surveillance and nomination provide alternative pathways to the CCL process.

    3. Developing a universe, screening to a subset of contaminants, and then selecting the CCL is possible for chemicals and microbes, and the approach needs to fit the data and information available.

- Challenges and practical considerations will need to be resolved.

Questions and Comments

- Mr. Ramaley noted that this working group put in a tremendous effort in terms of time. He also emphasized that this process is meant to be iterative and should change over time as it is determined what processes work best given the data available.

- Mr. Wheeler asked what the next step is if the Council approves the report. Ms. Dougherty explained that any recommendations that come from NDWAC are provided to EPA. EPA staff members have worked closely with the working group to help it with the process, and there is a big investment in the process. EPA will take all of the recommendations very seriously.

- Dr. Davis asked about the emphasis on human health and whether consideration was given to contaminants that may affect pets. Ms. Dougherty responded that the U.S. Department of Agriculture has authority and programs dealing with animal-health threats. Mr. King noted that the Safe Drinking Water Act focuses on human health, and that pets are out of the scope of what this regulation is considering. He also thinks that those pathogens and contaminants would likely be found in the CCL universe. Dr. Griffiths noted that the NAS panel was concerned about this issue, and the line between human and animal pathogens is very arbitrary. The nomination process may cover this possibility, but in the absence of human-health effects, EPA may not feel that it has the authority under SDWA to regulate these pathogens. Mr. King noted that although the CCL focuses on human health, this focus does not mean that EPA does not care about animals. Mr. Ramaley suggested that Dr. Davis's question was more of a programmatic suggestion than one relating to the CCL.

- Dr. Griffiths commented that his suggestion to add "potential or known" to the recommendation pertaining to screening microbes for inclusion in the PCCL was meant merely to clarify the point. It does not change the meaning of the recommendation, and it follows the language found in the rest of the report. He asked that the Council treat this as a very minor suggestion.

- Dr. Regunathan asked whether considering sensitive sub-populations was out of the scope of EPA's normal process.

- Mr. Betkoski asked about the training data set and the target audience. He complimented the working group members on their hard work. He also asked how this translates to the public and how this information should be conveyed to operators. Ms. Thorp replied that the training data set has the same audience as the rest of the report. Mr. King added that these issues do not affect setting particular requirements on a plant; the CCL process just

prioritizes contaminants for research and investigation. This does not take us all of the way to the regulatory decision. Mr. Ramaley clarified that the training data set is used in the development of the model only. Dr. Griffiths noted that the neural network approach is used by credit card companies to determine whether to give you credit. This is a similar process and a useful analogy to explain it to the public.

- Ms. Dougherty reminded the Council that the CCL sets the stage for data gathering and investigation into the contaminants. Regulatory determination occurs only after significant investigation of these contaminants.

- Mr. Young asked whether the working group was sure that experts can come up with a methodology to normalize data and quantify attributes. Mr. Ramaley responded that the experts working with the working group assured the group that it could be done. There is still controversy on exactly how to do it, but it can be done. Ms. Thorp added that the technical team assisting the working group went through a series of exercises that demonstrated it is possible.

- Dr. Head commented that this is just a data-sorting process, and she said she was ready to make a motion to accept the report.

- Dr. Spath agreed that he was ready to accept the report. He commented that the report allows for flexibility for EPA to move forward with the process and is not too prescriptive. He complimented the working group for its hard work.

- Mr. Schwartz expressed interest in seeing whether quantifying attributes will work. Mr. Ramaley replied that the process needs to be completed with a lot of input. Appendices C and D contain a lot of detailed information about that portion of the process. Dr. Griffiths noted that the NAS panel came up with five attributes, and even after detailed discussion in this working group those five held up. He said he thinks that the attributes used in the report are the right ones and can be quantified.

- Mr. Taylor expressed concern about the transparency of the CCL process, but was encouraged that this report provided a framework to increase that transparency. He then asked whether technologies (or other solutions) that mitigate a health risk are considered during the CCL process. Mr. King responded that technologies are considered during the regulatory-determination phase, not during the CCL process. Gathering general information on a contaminant is the important first step.

- Mr. Taylor commented that there is a belief that if a contaminant makes it to the CCL, it is important enough to be at least considered for regulation at some point. What happens if later on it is determined that there is no way to reduce the health risk posed by a certain contaminant? Mr. King pointed out that EPA, in setting national drinking water

standards, is required by statute to be able to demonstrate that there is a feasible treatment technology to reduce the health risk. If there is no identifiable technology or process to deal with that contaminant, then it is doubtful that a regulation would be promulgated. It is important to note, however, that so far EPA has not encountered that situation. Ms. Dougherty said if that case were to arise, that contaminant would stay on the CCL while additional research was conducted. A health advisory could be released; there would be a number of options to deal with the health risk in addition to consideration for regulation.

- Mr. Taylor asked whether a contaminant that makes it to the CCL will be regulated at some point. Mr. King clarified that the CCL prioritizes contaminants for research and possible regulation. If that research is completed and no health concern is found, then there is a finding for no regulation. At this point, the substance would come off the CCL and go back into the universe. Dr. Griffiths also noted that some contaminants are so regional in occurrence that EPA will decide not issue a regulation that applies nationally.

- Dr. Griffiths moved to amend the working group report by adding the phrase "potential or known" to the second paragraph of chapter 3, section 3.2.4, and related sections in the Executive Summary. Dr. Griffiths felt the phrase clarified the recommendation and reflected language found in the rest of the report.

- Dr. Head moved to accept the CCL CP Working Group report as written and amend Chapter 3 and the executive summary. Mr. Betkoski seconded the motion. The Council unanimously approved the motion and adopted the full report, as amended.

LUNCH (Recess 12:31 p.m. to 1:55 p.m.)

XI. Data Quality and Reliability - Mr. Chuck Job

- Mr. Job said that EPA believes that high-quality data are the foundation of program accountability and effective management. The Drinking Water Data Reliability Analysis and Plan for 2003 was just completed and is available online at http://www.epa.gov/ogwdw/data/pdfs/reports_draap_final_2003.pdf

- The report continues the collaborative state-EPA effort of working together to identify data quality issues and institute improvements; underscores incompleteness of SDWIS data; focuses on state compliance determination as a major factor affecting data reliability; and describes a comprehensive plan to improve data reliability developed during the summer and fall of 2003 with ASDWA members' input.

- The data that were analyzed constitute the SDWIS/Fed database that contains state-reported data on drinking water violations. States are required to collect data from

systems, including monitoring results, and, if a violation is found, that violation is reported to the SDWIS/Fed.

- The database is scheduled to be analyzed every 3 years. EPA regularly visits each state and compares the state's files with EPA's. Those investigations are the basis for the data quality report.

- Results of the analysis showed that data quality improved from 1999 to 2001, but it is still not adequate.

    - Overall health-based data quality improved from 40 percent to 65 percent.

    - Data quality of acute health-based (TCR) violations improved from 68 percent to 75 percent.

    - Data quality for monitoring and reporting (M/R) violations went from 9 percent to 23 percent.

- Mr. Job displayed a bar graph illustrating data quality by major category (TCR MCL, Other MCL, Surface Water Treatment Rule [SWTR] treatment technology, and M/R). The graph depicts the improvement of the data quality over time.

- A pie chart depicted the distribution of error types that affected data in or not reported to SDWIS/Fed. A compliance determination error represents an instance where, based on federal standards, a violation should have been issued, but was not. These errors represent differences between how a state interprets a rule and how the federal government interprets a rule. When the Federal reviewers flag these instances, the state is given an opportunity to explain its decision not to issue a violation. Mr. Job noted that those instances are not reflected in the pie chart. Ms. Dougherty commented that these numbers were based on the final verification review, and if the state's explanation met EPA's interpretation of the rule, it was not included in these numbers. Mr. Job explained that the pie chart also reflects data flow errors (data that were in the state's database, but not in EPA's), and errors in SDWIS/Fed.

- Ms. Dougherty pointed out that systems have to report a huge number of monitoring results and have to complete a huge number of compliance determinations. Fewer than 10 percent of the systems in the country have had violations. We are talking about a small portion of the total number of samples and compliance determinations on which systems and states make decisions.

- Mr. Job summarized the impact that these findings have on GPRA measurements of the program. He noted that these numbers are based on all of the results reported to SDWIS

for violations. Ms. Dougherty added that these numbers were not adjusted for data quality (i.e., those that were incorrectly reported or not reported at all are not reflected in this slide). This means that compliance across the whole country is likely lower than what is currently shown in the database, but most likely not much lower.

- Mr. Job detailed the plan for improving data quality, including:

  1. Compliance Determination

     a. Develop state-specific improvement plans using existing processes, such as annual work plans.

     b. Correct discrepancies from data verifications.

  2. Data Reliability

     a. Formalize data verification follow-up to address identified deficiencies.

     b. Encourage or require states to implement quality assurance management plans.

  3. SDWIS Modernization

     a. Implement program and Agency data standards.
     b. Web-enable the SDWIS/State application.
     c. Maintain detailed documentation for error correction.
     d. Continue evaluation of the impact on states of SDWIS modernization.

  4. Monitoring and Reporting

     a. Encourage states to adopt automated schedule tracking.

     b. Encourage states to notify systems annually of monitoring requirements and schedules.

     c. Encourage states to move toward electronic data receipt from laboratories and facilitate technology transfer.

  5. Violation Timeliness

     a. Evaluate why violation reporting is low and not improving.

6. Violation Non-Reporting

   a. Evaluate all instances of potential violation non-reporting and take steps to ensure reporting.

      – Ms. Dougherty noted that a number of states have not reported violations for certain rules for a number of years, so EPA sent letters to the Regions regarding these states. In some cases this non-reporting may be because there were no cases of non-compliance; in others, it may be due to reporting error. The Radionuclides Rule is a good example of a rule for which not a lot of data are being submitted by the states. Mr. Baker pointed out that in many cases, the problem may be that the states are not reporting their results to SDWIS/Fed properly.

   b. Ensure that data management concerns are considered during each phase of the rule development process.

- Mr. Job summarized the next steps for implementing the data quality improvement plan, including:

  - Establishing a data reliability improvement "team" with state and EPA representation.

  - Identify a process to implement the plan through existing annual work plans and other state-EPA agreements.

  - Report progress through an annual update to the Data Reliability Report and at the annual meeting of ASDWA and EPA.

- Mr. Job displayed the Web site address to access the full report: www.epa.gov/ogwdw/data/pdfs/reports_draap_final_2003.pdf/.

Questions and Comments

- Ms. Dougherty pointed out that the executive summary of the report, the inspector general's report, and EPA's response are in the Council's notebooks.

- Dr. Griffiths pointed out that, in Canada, lack of timeliness or completeness of reporting is a violation in and of itself. The degree to which the Canadians are looking at these issues is impressive. Dr. Spath suggested that the problem may not be that states are not following up on violations, but that they are neglecting to put that data into SDWIS/Fed.

- Ms. Dougherty commented that the data verification surveys are based on a random inspection of files for all water systems, and by focusing randomly on all systems, the results are skewed to reflect smaller systems.

- Mr. Young pointed out that there is a tremendous inconsistency among states and how much of the reporting process is automated. One way to improve data quality is to encourage automation. Are there ideas on how to assist states with funding and technology development to increase automation? Ms. Dougherty answered that over the past couple of years, EPA has developed SDWIS/State, a reporting system designed for use by states. Currently, up to 40 states are going to use the program. Reporting to SDWIS/Fed becomes very easy once a state is using SDWIS/State. Through the Office of Environmental Information, EPA has funded some pilot studies on how laboratories can report electronically to states and EPA.

- Dr. Spath noted that one of the problems with using SDWIS/State is in a decentralized state. The Web-based system will help. Also, sending schedules to water systems is good, but getting information to small systems is sometimes difficult because they do not have access to computers or the Internet.

- Ms. Surgeon commented that, on the issue of timeliness, there is a ripple effect. The data that EPA is looking at right now are a few years old, so it is difficult to get a handle on what is happening now.

- Mr. Florquist asked how long the violation data stay in SDWIS/Fed. Mr. Job replied that the data stay in the database. How that violation is followed up on depends on the state, and there is a return to compliance step that is reported for most rules.

- Dr. Regunathan was surprised by the low percentage of accuracy of data quality. He asked why the percentage is so low, and whether that means that systems are not monitoring as required by law. Mr. Job responded that there are instances when monitoring should have occurred and did not. He pointed out that this is a small percentage of violations when you consider that millions of samples and test results are successfully reported. Ms. Dougherty added that page ES-3 of the report sums up this issue.

Mr. Ramaley thanked Mr. Job for his presentation and introduced Ms. Yu-Ting Guilaran for the next presentation.

XII. Total Coliform Rule - Ms. Yu-Ting Guilaran

- Ms. Guilaran summarized the public health issues associated with distribution systems, including outbreaks of waterborne disease and contaminants found in distribution systems. Seventy-four outbreaks were reported from 1981 through 2000; waterborne disease outbreaks are underreported across the country. Quantifying the national occurrence of contaminants and diseases is difficult, and the presence of contaminants may be intermittent and hard to capture. Therefore, there is a lack of data on many of these issues.

- Ms. Guilaran offered regulatory background including the Federal Advisory Committee (FACA) recommendations from the Microbial and Disinfection Byproducts (M-DBP) working group. The panel of 21 members representing government and stakeholders met from March 1999 through July 2000. The FACA discussed M-DBP rule-making issues, the maintenance of water quality in the distribution system, risks associated with cross-connections, and characterizing backflow prevention programs. In September 2000, the FACA provided three recommendations to EPA:

    - Evaluate available data and research on aspects of distribution systems that may create risks to public health.

    - Work with stakeholders to initiate a process for addressing cross-connection control and backflow prevention requirements.

    - Consider additional distribution system requirements related to significant health risks.

- Six-year review of TCR:

    - The Administrator has the authority to review and revise, every 6 years, each National Primary Drinking Water Regulation (NPDWR) as necessary. Any revision shall maintain, or provide for greater protection of, public health.

    - The 6-year review notice of intent was published in April 2002. EPA requested public comment of review of 69 (pre-1997) NPDWRs, including TCR.

    - The 6-year review final determination included the decision to revise the TCR published in July 2003. Implementation-related issues are the primary reason for the revise decision on TCR. EPA will consider distribution system requirements for issues of significant public health concern.

- TCR requirements include:

    - **Monitoring.** Depending on population, monitoring can vary from 1 to 480 TCR samples a month. States may reduce monitoring for CWSs and noncommunity water systems (NCWSs).

    - **Follow up on TC positives.** Follow up includes collecting a set of repeat samples for each TC-positive and five routine samples the next month.

    - **MCL Violations.** Systems must notify the state by the end of the next business day and notify the public according to the Public Notification Rule.

- Key issues for the TCR include monitoring minimum requirements, frequency of monitoring, requirements for violations, alternative indicators, and greater flexibility for site sampling.

- The key issues for distribution systems include risks from multiple sources such as cross-connections, intrusion, water storage, and flow management, and from organics permeating through plastic pipes and leaching from the interior of pipes and linings; reported microbial exposure (bacteria, viruses, and protozoa); and chemical exposure (pesticides, metals, synthetic organics, and disinfectants and disinfection by-products).

- One of the FACA recommendations was to work with stakeholders. In June 2000, over 20 experts participated in a workshop. White papers were developed on the key issues identified at that meeting, and in March 2002, EPA held a follow-up conference where 9 papers were reviewed.

- The white papers are available from the EPA Web site: www.epa.gov/safewater/tcr/tcr.htm Topics of the papers are:

    - Cross-connections and backflow.
    - Biofilms and microbial growth.
    - Aging infrastructure and corrosion.
    - Intrusion.
    - Covered water storage.
    - Nitrification.
    - Permeation and leaching.
    - Decay in water quality over time.
    - Contamination during main repair and replacement.

- More recent stakeholder meetings were held in Seattle and Washington to review the white papers. Participants agreed that cross-connections and backflow were the issues of most concern. In March 2004, an international Distribution System Exposure Assessment Workshop was convened to identify, discuss, and prioritize factors, influences, contaminants, indicators, and management strategies that pertain to potential health risks arising from distribution system problems.

- The current status of the TCR:

    - Additional issue papers are under development:

        - Effectiveness of disinfectant residuals and total coliform positives in distribution systems.

        - Causes of contamination events and total coliform positives in distribution systems.

        - Appropriate distribution system contamination indicators.

        - Invalidation of total coliform positive samples.

        - Evaluating Hazard Analysis and Critical Control Point (HACCP) Strategies for distribution system monitoring, hazard assessment, and control.

        - TCR compliance analysis.

        - Distribution systems inventory and condition assessment.

        - Effect of treatment on nutrient availability.

        - Metals accumulation in pipe scales and sediments.

        - Optimization of distribution system monitoring strategies.

- Next steps for EPA include:

    - Revising the TCR and considering distribution system requirements.

    - Developing 10 total coliform issue papers and holding meetings with experts to review them.

- Initiating a formal rule-making process.
- Proposing revised rule in 2006.

Questions and Comments

- Mr. Ramaley commented that distribution systems are critical with regard to security. He asked if there is a cross-pollination happening between security and distribution systems experts. When the initial white papers were completed, security was not a focus. Mr. King responded that the white papers were reviewed and revised to include more security information. EPA may create a separate issue paper on security or consider security issues through the rule-making process. Mr. Ramaley suggested that security issues should be considered throughout any rule-making process.

- Mr. Taylor asked for an explanation of HACCP. Ms. Guilaran explained that an HACCP is a risk-based approach that identifies critical control points where there may be vulnerabilities. The idea is to have an active approach to identify vulnerabilities. Mr. King added that the idea is to identify issues with the highest priorities and to have your response be site-specific. The challenge with this approach is to make it transparent.

- Dr. Regunathan asked whether EPA is working towards looking at the whole distribution system or just towards TCR. Mr. King clarified that this presentation was intended to outline the scope of the issues in revising TCR and considering other distribution system issues. EPA views this as an opportunity to analyze these distribution system issues and ask whether everything is covered in the TCR. Mr. Ramaley mentioned that many of those issues were identified by the FACA group.

- Dr. Griffiths commented that aspects of monitoring under the TCR have been proposed for substitutes for *Cryptosporidium*. These are complex issues, and there are not a lot of data in this area. He asked where the Agency plans to go with this. Mr. King responded that the Council should weigh in on these issues. EPA's sense is that there needs to be some kind of engaged process. One of the questions that was raised in the last meeting was, "What is the best way to proceed with this, a NDWAC working group or a separate FACA?" Ms. Dougherty added that it is likely EPA will need some sort of FACA-driven process to discuss the rule because the issues are so complex. Mr. Ramaley commented that it is difficult to have continuity in a NDWAC working group because membership changes over time, and this issue may lend itself toward a stand-alone FACA.

- Dr. Regunathan suggested that more than one working group should be looking at the entire picture because the issues are so complex and varied.

- Dr. Spath agreed with Mr. Ramaley and made a motion to recommend that EPA proceed with a stand-alone FACA (not affiliated with NDWAC) to address the TCR and related distribution system issues. The motion was seconded and approved by the Council.

- Mr. Ramaley thanked Ms. Guilaran for her presentation.

- Ms. Dougherty presented Dr. Spath with a paperweight commemorating his service as the Council Chair. Dr. Spath thanked Ms. Dougherty and the Council members.

Mr. Ramaley adjourned the meeting at 3:40 p.m. to be reconvened at 8:30 the following morning.

THURSDAY, MAY 20, 2004

XIII. Introduction and Review of Day Two

- Ms. Donaher reviewed travel logistics for the NDWAC members.

- Mr. Ramaley expressed his appreciation to Ms. Thorp and Dr. Griffiths for their CCL presentation on Wednesday, which led to the Council's acceptance of the CCL CP report. The second important item on Wednesday was the Council's recommendation that EPA to move forward with the stand-alone FACA for TCR. Mr. Ramaley added that the presentation on data quality and reliability was stimulating as well.

- Mr. Ramaley then discussed the items on the agenda for Day 3 (Thursday, May 20). He said that the Council heard the TCR presentation on Day 2 (Wednesday, May 19), so Jeff Kempic would be presenting on cost models in the morning instead of the afternoon. Mr. Ramaley said that the Council members still needed to discuss what topics they would like to hear at the fall 2004 meeting and when and where to meet. Mr. Ramaley said that at the Cincinnati meeting, the Council laid out a series of topics for future meetings. Five of those topics were covered during this meeting: security, reviewing the revised arsenic cost models, revising TCR and distribution system-related issues, the new Strategic Plan, and the 30th anniversary of SDWA. The issues that remain are infrastructure sustainability, ways that the Council may look at the future of the regulatory program from the perspective of how Europeans approach it, and demonstrating accountability. Mr. Ramaley commented that another area the Council has not touched on is public communication of risk. He said that during this meeting, he heard interest from the Council in having input on the strategic plan and performance measures. He asked the Council members to list any other issues that they would like to discuss.

- Ms. Dougherty said that EPA tries to hold the November meetings in a city where the Council could take a field trip. She urged the Council to think what kind of field trip would be educational.

- Mr. Schwartz said that infrastructure sustainability ties into capacity development. His state association received a grant from the SRF set-asides to do a capacity development training system. It comes on a CD-ROM and is Web-based; the training system ties in with a variety of manuals NRWA has produced. Mr. Schwartz said it is an impressive program that small system managers and operators can use to pursue capacity development. He said that if time were available at the November 2004 meeting, he would like to demonstrate the training system. He would need to verify for sure that it will be fully completed. He thought he could present it in 10 to 15 minutes. Mr. Ramaley said that would be good.

- Ms. Thorp hoped to hear an update on the lead situation at the November 2004 meeting. She expressed interest in working with a couple of other Council members before then to come up with a recommendation to EPA. Mr. Ramaley asked whether she would be looking at the status between now and then and lessons learned. Ms. Thorp replied that is what she would want to look at. She felt that a lot of the Council members know what the correct responses to such a situation are, and not just in the Washington, D.C. area.

- Mr. Baker said that he would like to focus the agenda on items that the Council could be making recommendations about to EPA, rather than spend a large portion of the agenda on updates. He said that he would be very interested in getting a report out on the strategic plan and hearing about specific action items.

- Dr. Regunathan said that he would like to hear more about the development of the arsenic regulation.

- Ms. Surgeon said that she would like to follow up on some examples of tools for technical assistance or capacity development. There is a whole universe of such tools available, she noted. She thought that perhaps the Council could help organize information about some of those tools in a user-friendly format that would be available to interested parties. She also wants the Council to start looking at water quantity. Many violations issued over the past couple of years were related to the drought in the West.

- Mr. Betkoski said that he would like to present to the Council members the financial ramifications of many of the topics that they discuss. He asked to do a 15-minute presentation with Mr. Young at the next meeting, if Mr. Young would be interested in doing that. Mr. Young replied that he would be interested.

- Mr. Baker said that aquifer storage and recovery is a topic related to water quantity that presents some challenges and opportunities.

- Mr. Wheeler said that he would like to look at where EPA is on integrating and merging its wastewater, storm water, and drinking water sides. Dr. Spath agreed with Mr. Wheeler. He said that water resources will always change. He thinks it is a good topic to discuss. Mr. Ramaley asked Mr. Wheeler and Dr. Spath whether they were suggesting hearing from EPA about how the Agency views that integration. Dr. Spath said that he would like to get the drinking water perspective as it relates to the Agency perspective. He added that many times the line is blurred between CWA and SDWA, and the Agency may want to get guidance from the Council. Ms. Dougherty suggested that the Council have speakers from outside EPA talk about how they are handling that. Dr. Spath said he feels it is a state-driven activity, and he thinks it would be positive if the Agency got involved.

- Dr. Head said that the whole issue of water quantity and where the water comes from is a state issue, but at some point it becomes a national issue. Mr. Ramaley commented that the U.S. Army Corps of Engineers deals with that topic a great deal, but there are some disconnects. Dr. Spath noted there are a number of federal agencies on the water quantity side. He suggested looking at it as a water-resource issue.

- Mr. Florquist commented that the Endangered Species Act is having an effect on water quality and quantity.

- Mr. Baker said another issue that has come up several times is the management of drinking water treatment residuals, specifically solids, radionuclides, and arsenic. He said that proper management should be discussed.

- Mr. Wheeler said that, from his point of view, Florida and California have been leaders in reclaimed water. He believes not enough attention has been given to how to approach reclaimed water and there needs to be some national direction. Florida has "copped out" on the public health side because quantity has been such an issue, he said, and the state's decision affects consumers. Mr. Ramaley commented that this happens in other states as well, not just Florida.

- Mr. Ramaley said that there are more than enough topics for the November 2004 meeting and maybe even some for the May 2005 meeting, too. He then introduced Mr. Jeff Kempic.

XIV. Review of Cost Models - Mr. Jeff Kempic

- Mr. Kempic clarified that these cost models refer to treatment technology unit cost models, not national cost models.

- Treatment Technology Cost Evaluation Under SDWA:

    - EPA is required to identify best available technologies (BATs) that large systems can use to comply with drinking water regulations.

    - EPA is also required to list small system compliance technologies (SSCTs) that small systems can use to meet drinking water standards.

    - Treatment cost is evaluated in the BAT and SSCT determination.

    - Technology cost estimates are also used in national cost estimates, which can influence the maximum contaminant level.

- Reviews of Old Cost Estimating Models:
    - EPA's 1996 blue-ribbon panel suggested revising the 20-year amortization assumption and accounting for site-specific factors that affect cost.
    - EPA held a technology design workshop in 1997. Workshop participants said that the current models were inadequate and recommended level 3/4 work breakdown structure (WBS) for the long-term approach.
    - EPA had NDWAC review the old models in 2001. The Council said that detailed recommendations were more readily implemented in the WBS model than in the existing parametric models.
- WBS Approach:
    - A treatment technology is broken down into discrete components that can be measured for the purpose of estimating costs. The components include specific equipment (e.g., tanks, vessels, pipes, and instruments) and other identifiable cost elements such as annual expenditures on labor, chemicals, and energy.
- Among EPA's goals for the WBS approach is to have a transparent design and cost analysis and defensible design criteria and assumptions based on generally recommended engineering practices.
- Structural Objectives:
    - Build structural objectives into a spreadsheet model to facilitate review/distribution and maintain transparency.
    - Use a modular format to enhance flexibility.
    - Construct individual technology-specific models using a consistent process-based approach.
    - Have technology models linked to a central database to facilitate cost updates.
- WBS Levels:
    1. Technology.
    2. Component (vessel, pipe, etc.).
    3. Function (backwash tank, pipe).

4. Material (steel, PVC, etc.).

- Components are based on level 3/4 WBS.
- EPA will keep its design assumptions well documented.
- The output of the WBS models will be total capital cost, operations and maintenance (O&M) cost, and component-specific unit costs and useful lives.
- WBS Database:
  - Includes costs for over 1,100 components.
    - These are unit costs that represent installment costs.
  - Includes component-level useful lives.
  - Includes other centralized databases.
- WBS Simulation Model:
  - An automated model that operates WBS engineering models.
  - Generates technology-level costs and composite useful life outputs.
  - Automates the cost-curve development process.
  - Creates tables and charts for the Technology and Cost (T&C) documents.
- Status of WBS Models:
  - EPA has draft process-cost models for over 20 treatment technologies.
  - EPA has specific modules for add-on capital costs. The Agency is trying to advance these modules so they can be used as a "hybrid approach" for existing modules that support current rule development activities.
  - The models are in various stages of peer review.
- Useful Life in WBS Database:
  - Component useful lives are based on construction material.
    - EPA adopted the useful life for service lines used by State Public Utility Commission depreciation guidelines.
    - EPA has detailed estimates from service lives in Florida guidelines and from some vendor/operator estimates.

  - Other states tend to have longer services lives; Florida's are the most conservative.

  - The system useful life is reciprocal-weighted average component useful lives.

- EPA has 23 WBS engineering models. The models marked with asterisks on the slide are the least developed models at the moment. Many of the absorption-type media are almost complete.

- Next Steps:

  - Validating equipment standards.
  - Incorporating new or updated vendor costs.
  - Quality Assurance / Quality Control.
  - Refining indirect costs.
  - Need to look at package plant costs.
  - Refining membrane models.
  - Peer review of critical design assumptions.

- The contacts for the cost models are Jeff Kempic (kempic.jeffrey@epa.gov) and Rajiv Khera (khera.rajiv@epa.gov)

Questions and Comments

- Mr. Florquist commented that replacement costs are frequently a function of regulation rather than longevity of a plant. He added that Rule 34 fits right into the longevity of things.

- Mr. Baker asked whether there is an expectation that the cost estimates will go down with this more detailed approach. Mr. Kempic replied that from the perspective of a long-term comparison, useful life is longer, so the cost/benefit ratio would be better and would make the cost estimate go down. Mr. Baker asked what type of analysis had been done on previous cost estimates. Mr. Kempic replied that EPA has a cost retrospective study to get a better idea of what it actually costs to comply with various regulations. EPA did a cost retrospective study in the early 1990s, but the Agency had a very difficult time determining actual capital and O&M costs. Mr. Baker asked whether Mr. Kempic would agree that EPA does not have a good handle on how accurate the costs are generated by the approach the Agency has been using. Mr. Kempic replied that the alternatives EPA selected were lower cost.

- Dr. Regunathan commented that he was pleased to see that many models are being implemented. He asked whether any cationic exchange or other models not related to arsenic are being developed. Mr. Kempic replied that spreadsheet-based models allow more flexibility. They allow certain inputs in terms of what removals might be needed, etc. Dr. Regunathan added that there are several small developments going on for arsenic all over the country. He said that many of these things could be verified very quickly.

- Mr. Young commended all the work spent on updating the cost models. He said that the model could produce very accurate costs for new facilities. He asked how successful the model would be at estimating costs for renovations to older facilities. Mr. Khera replied that EPA is working on adding that module. Mr. Young asked whether that module would come out at the same time. Mr. Khera said that it would.

- Ms. Surgeon said that regionalization has often been recommended for small systems. She asked whether this model could show some of the benefits of building a regional system instead of, say, six small systems. Mr. Kempic said that you would be able to compare what one system of a certain size would cost versus six smaller systems, but there would still be some site-specific variables not covered by the model.

- Mr. Taylor asked what the ultimate purpose was for the cost models. He asked how one would go about updating the model. Mr. Kempic replied that the general purpose is for EPA to have a better idea of costs for technologies. The way the models are set up, they can have other uses, too. There are definitely other potential applications of the models. Ms. Dougherty added that when EPA develops a regulation, it is required to identify BATs for all systems and to perform a cost/benefit analysis. These models help identify BATs that are affordable and help develop costs. She said that EPA also has to identify, for smaller systems, whether there is an affordable compliance technology available and what is that technology.

- Mr. Ramaley asked whether the principal purpose behind the models was to facilitate regulatory development. Mr. Kempic replied that when EPA develops a regulation, it has to include the model with the T&C document.

- Mr. Ramaley asked whether there was an intent to publish the cost model. Mr. Kempic did not believe that EPA wanted to publish the cost model in a document. He said that EPA would be reluctant to do that because of the changing face of costs as they evolve.

- Dr. Spath asked how the add-on model would be able to identify the significant variability of land costs. Mr. Kempic replied that he was not sure of the specifics of the land module. Mr. Young commented that it would be very difficult because the cost of land is so site-specific. Mr. Kempic said that the old assumption was 2 to 5 percent of capital costs. He said that this model will provide a more realistic estimate. Mr. Young

commented that it is difficult to identify systems as rural and urban because there may be an urban system that it is outside of town in a rural area.

- Ms. Beardsley asked where disposal costs fit in. Mr. Kempic replied that, in some cases, those modules are still being worked on. Disposal costs will vary depending on media. Ms. Beardsley asked whether those costs are to be included. Mr. Kempic replied in the affirmative.

- Mr. Ramaley commented that one pitfall could be that EPA will be considering national averages for a regional problem.

- Dr. Spath said that he presumed that EPA is going to have occurrence data from across the country. He asked whether this model could be tailored over those occurrence areas. He felt that it would add power to the result, but was unsure whether it would be feasible. Mr. Kempic replied that, for arsenic, EPA had occurrence data for 25 states and applied the data to the other 25 states. He said that it would be difficult to do.

- Dr. Regunathan said that he thought this model was for unit costs, but Dr. Spath's question was a national cost estimation. Mr. Kempic replied that you would have better unit costs in certain localities so then you would have better national costs. Ms. Dougherty added that these models provide inputs to the national model.

- Mr. Ramaley asked how widespread the peer review was. Mr. Khera replied that EPA had three peer reviewers, including Mr. Young. Mr. Kempic clarified that they had three peer reviewers for each component.

XV. Open Discussion/Review of Action Items for Next Meeting

- Mr. Ramaley said that the Council needed to discuss logistical items with respect to the November 2004 meeting. He said that, during the boat ride on Wednesday evening, he heard many suggestions that the meeting should be held on the West Coast. The Council discussed holding the meeting in Las Vegas, Monterey, or possibly Tampa to see the new desalination facility. Mr. Ramaley said that the desalination facility may not be operational by November, so the Council might want to hold a later meeting in Tampa.

- Mr. Baker said that there was serious discussion of holding the meeting in the Monterey area. There would be field-trip opportunities there related to potential agenda items. Dr. Spath added that Monterey has a number of interesting attributes regarding water resources.

- Ms. Dougherty said that the Council not only needs to consider the cost of getting all the members out to Monterey, but also the time involved getting everybody out there. She said that the Council members needed to decide how much time they were willing to take out of their schedules.

- Mr. Ramaley asked if there were any other discussion items. Ms. Donaher said that there was concern when in November the meeting would be held. Mr. Ramaley asked the Council which week would be best. He said that the Council would have to avoid the week of November 24 because of Thanksgiving. He also noted that November 2 is election day.

- Ms. Dougherty said that EPA would send an e-mail to the Council members to see when everyone would be available. She also asked the Council members to let EPA know when other meetings are going to be held, such as the AWWA meeting.

- Dr. Spath suggested tying the next meeting in with the launch of the HydroExpress in San Jose. Ms. Dougherty said that would be a good idea.

- Ms. Dougherty said that the dates for the next meeting would range from the last week in October to the second week in December.

- Mr. Ramaley thanked Ms. Donaher for organizing the boat ride and dinner on Wednesday evening.

Mr. Ramaley adjourned the meeting at 9:56 a.m.