

NATIONAL DRINKING WATER ADVISORY COUNCIL

MEETING SUMMARY

JUNE 1-3, 2005

**MADISON HOTEL
15TH AND M STREET, NW
WASHINGTON, DC 20005**

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

**PREPARED BY
THE CADMUS GROUP, INC.
57 WATER STREET
WATERTOWN, MA 02472**

JULY 2005

Members of the National Drinking Water Advisory Council (NDWAC)

Brian Ramaley, Director, Newport News [VA] Waterworks and Chair of NDWAC
Michael Baker, Chief, Division of Drinking Water and Ground Water, State of Ohio, EPA
Nancy Beardsley, Director, Drinking Water Program, State of Maine, DHS
John Betkoski, Commissioner, Department of Public Utility Control, State of Connecticut
Bruce Florquist, Director of Public Works, City of Rawlins, WY
Jeffrey Griffiths, Director, Graduate Programs in Public Health and Assoc. Prof. of Family Medicine and Community Health, Tufts University School of Medicine
Gregg L. Grunenfelder, Chief Administrator, Division of Environmental Health Washington State Department of Health, Olympia, WA
Rebecca Head, Director, Public Health Preparedness, Washtenaw County [MI] Public Health Dept.
Perialwar (Regu) Regunathan, Consultant, Wheaton, Illinois
Dennis Schwartz, General Manager, Rural Water #8, Tecumseh, KS
Blanca Surgeon, Rural Development Specialist, Environmental Rural Community Assistance Corp., NM
Jeffrey Taylor, Deputy Director, Public Utilities Division, City of Houston, TX
Lynn Thorp, National Programs Coordinator, Clean Water Fund, Washington, DC
Brian Wheeler, Executive Director, Toho Water Authority, Kissimmee, FL

Representatives from the Centers for Disease Control and Prevention Attendee (CDC)

Sharunda Buchanan, Chief, Environmental Health Services Branch, Division of Emergency and Environmental Health Services, National Center for Environmental Health, Centers for Disease Control and Prevention

U.S. Environmental Protection Agency Attendees

Benjamin Grumbles, Assistant Administrator for Water
Mike Shapiro, Deputy Assistant Administrator for Water
Cynthia Dougherty, Director, Office of Ground Water and Drinking Water (OGWDW)
Nanci Gelb, Deputy Director, OGWDW
Veronica Blette, Special Assistant to the Director, OGWDW
Steve Heare, Director, Drinking Water Protection Division, OGWDW
Ron Bergman, Acting Chief Drinking Water Protection Branch - OGWDW
Janet Pawlukiewicz, Director, Water Security Division, OGWDW
Valerie Blank, Research Liaison, Standards and Risk Reduction Branch, SRMD, OGWDW
Tiffany Disrud, Resources Management and Evaluation Staff, OGWDW
Elana Goldstein, OW
Fred Light, U.S. EPA/OIG
Dan Malloy, Chief, Resources Management and Evaluation Staff, OGWDW
Jennifer Moller, Drinking Water Protection Division, OGWDW
Jeff Peterson, OW
Bruce Schillo
David Travers, Associate Director, Water Security Division, OGWDW
John Whittler, Water Security Division, OGWDW

Designated Federal Officer

Clare Donaher, Office of Ground Water and Drinking Water

Also Present

David Bauer, ICF
C. David Binning, Director Planning and Engineering Division Fairfax (VA) Water

Erica Brown, Association of Metropolitan Water Agencies (AMWA)
Jeff Cooley, Rural Community Assistance Program (RCAP)
Mark Gibson, HACH Co.
David Goldbloom-Helzner, ICF
Rob Greenwood, Ross and Associates
John Hoornback, National Environmental Services Center (NESC)
Brian Kleinman, Office of Management and Budget (OMB)
Vanessa Leiby, The Cadmus Group, Inc.
Elizabeth McManus, Ross and Associates
Kevin Morley, American Water Works Association (AWWA)
Kevin Neyland, Office of Management and Budget (OMB)
Bridget O'Grady, Association of State Drinking Water Administrators (ASDWA)
Paul Orum, WGCRTK
John Porco, Michael Baker Corporation
Lisa Regan, George Washington University (GWU)
Alan Roberson, American Water Works Association (AWWA)
Jim Taft, Association of State Drinking Water Administrators (ASDWA)
Diane Van De Hei, Association of Metropolitan Water Agencies (AMWA)
Ken Zaklukiewicz, Michael Baker Jr.

**NATIONAL DRINKING WATER ADVISORY COUNCIL
MAY 2005 MEETING
SUMMARY**

DAY 1 (June 1)

Opening Remarks and Introductions

Brain Ramaley, the Council's Chair, opened the NDWAC meeting and welcomed new member Gregg Grunenfelder and Centers for Disease Control and Prevention's (CDC) representative Sharunda Buchanan. He asked each NDWAC member to introduce himself/herself. He then turned the meeting over to Cynthia Dougherty, Director of the Office of Ground Water and Drinking Water (OGWDW). He also noted that two Council members, Dr. Jeffrey Griffiths and John Young, Jr., are not able to attend the meeting, although Dr. Griffiths will call in for some sessions. In addition, Dr. Phil Singer, the Science Advisory Board's liaison to the Council will not be in attendance.

Cynthia Dougherty welcomed new and returning NDWAC members to the table and began by updating the Council members on personnel changes at EPA. First, Ephraim King is no longer with OGWDW; he has moved to the Office of Science and Technology (OST) as its Director. Second, Phil Oshida has stepped in as Acting Director of the Standards and Risk Management Division and we have a notice out for an Acting Associate Director to assist Phil. Last, as of yesterday, Dan Malloy is OGWDW's permanent Chief of Staff and replaces Clare Donaher who acted in that position for 15 months. Clare will continue to serve as the Council's Designated Federal Officer until she retires at the end of this year.

Ms. Dougherty said that the Agency is finalizing three drinking water rules: Long-term 2 Enhanced Surface Water Treatment Rule (LT2), Stage 2 Disinfectant/Disinfection Byproducts Rule (Stage 2), and Ground Water Rule (GWR). These rules will be at the forefront of EPA's agenda during the next several months.

Ms. Dougherty reported that the top priority of Ben Grumbles, Assistant Administrator for Water, is the Lead Risk Reduction Program. In the short-term, revisions will be made to the existing Lead and Copper Rule, and EPA will prepare outreach and guidance materials to clarify the requirements of the rule. EPA also plans to address more detailed issues in the long term.

Ms. Dougherty said that Steve Heare, Director, Drinking Water Protection Division, will update the Council on drinking water issues under the Interstate Carrier Conveyance (ICC) program.

Ms. Dougherty said EPA also plans to develop a road map for source water protection activities to help systems implement source water protection activities and programs.

Mr. Ramaley reviewed the agenda for the next 2 1/2 half days.

Clare Donaher, Designated Federal Officer (DFO), provided the Council with logistical information, including a menu for the networking dinner scheduled for June 1, 2005 at 6:45 p.m. Ms. Donaher also noted that in addition to the update on Lead in Drinking Water, Ron Bergman would also make a presentation on the Public Water Supply Supervision (PWSS) Logic Model.

Mr. Ramaley reminded members of the proceedings during the December 2004 meeting, including NDWAC members' presentations and discussions on performance measures and indicators.

Mr. Ramaley reported that the current meeting would focus on Lead in Drinking Water efforts, a continuation of the performance measures discussion from December 2004, and a report on the Water Security Workgroup (WSWG) findings and recommendations. He thanked the WSWG members for their effort.

Mr. Ramaley said that there are public sign-up sheets outside the main entrance to the meeting room. He reminded anyone wishing to make public comments during the public participation session on June 1, from 5 - 6 p.m., or June 2, from 4:30 - 5:30 p.m., should sign up in advance.

Mr. Ramaley reminded the Council that during the previous meeting each Council member made a presentation, and then the entire Council discussed each presentation. During the December 2004 meeting, members supported the formation of a subcommittee to tackle performance measures. The subcommittee, however, was not able to meet between December 2004 and June 2005.

Update on Lead in Drinking Water Activities and a Proposed NDWAC Working Group – Ron Bergman, Acting Chief, Drinking Water Protection Branch - OGWDW

Ron Bergman: As a requirement of the Lead and Copper Rule (LCR), all systems serving 3,300 or more persons must report 90th percentile lead values to SDWIS/FED. EPA has reviewed the data in SDWIS/FED to determine if the recent Washington, D.C. Water and Sewer Authority (DC WASA) lead issue was an anomaly. According to EPA's research, of the systems with 90th percentile values in SDWIS/FED, 4 percent had at least one action level exceedance (ALE) during the past 4 years (2000 to 2004). Of the 160 systems with ALEs during the past 4 years, 15 were large drinking water systems serving 10,000 or more persons. Ninety-eight percent of systems required to report monitoring data to SDWIS/FED have done so.

EPA also recently completed an intensive 10-state review of LCR implementation. As part of this review, EPA selected 420 drinking water systems using the *Data Verification Protocol* to ensure a statistically significant selection of small and large systems. The review examined more than 10,000 individual sample results. Based on the findings of the review, EPA is preparing a national report to describe implementation issues such as:

- How systems are using sample sites
- How systems handle follow-up actions after an ALE
- Whether systems use Tier 1 sample sites
- Whether systems drop sample sites with high values
- Whether systems that change sample sites document the changes.

In conjunction with these efforts, EPA has also presented a series of expert workshops and developed or revised guidance on lead service line replacement (LSLR) practices and issues surrounding lead in schools served by PWSs.

Mr. Bergman said the major lessons that can be learned from the DC WASA experience are:

- The need for better communication with the public regarding lead in drinking water.
- The need for specific guidance on flushing, if the consumer is served by lead service lines.
- The need for improved methods of communication between public water systems and consumers, particularly schools.

Mr. Bergman summarized EPA's next steps:

- **Quick Regulatory Fixes:** EPA plans to clarify specific sections of the rule, review and revise the public education (PE) requirements as necessary, and provide additional guidance to schools and to systems regarding simultaneous compliance issues.
- **Lead Reduction Program:** EPA plans to make wholesale regulatory changes to the current rule, including monitoring changes which will require systems on a triennial schedule to monitor during the same calendar year and to sample during the months of June to August; will require systems to provide results to individual home owners; and will require that all reporting is completed on time. Also, EPA plans to update guidance manuals and will provide additional guidance on replacing plumbing fixtures.
- **A Focus on Schools:** EPA hosted a workshop in December 2004 for schools served by public water systems (PWSs) that was attended by water system operators and school associations. States have asked EPA to provide more information on how to best help schools served by PWSs. EPA plans to provide additional guidance to schools and perhaps create additional requirements for water systems that serve schools. Mr. Bergman also shared EPA's concern that childcare facilities are not aware of these issues until there is a significant problem with the water supply. While systems have learned from their mistakes, EPA is planning to prepare additional guidance and education materials for schools and childcare facilities.

Mr. Ramaley commented that the LCR rule manager is not always aware of water treatment changes that could affect compliance with other drinking water regulations. Following the publication of a simultaneous compliance guide, EPA should consider hosting a complementary

Web cast training. He suggested that EPA's training should be designed to reach all relevant stakeholders.

Dennis Schwartz asked why lead in schools seems to be a persistent problem. Mr. Bergman responded that there is no requirement for schools served by PWSs to do anything. The level of lead in the drinking water of schools depends on the components of the school's distribution system. He also noted there are no specific requirements for schools served by PWSs. Mr. Schwartz said his understanding was that a significant portion of lead contamination in schools is caused by water coolers. He asked why they are not replaced more quickly to address lead-contamination issues.

When asked why schools were not the focus of monitoring sites, **Ms. Dougherty** commented that the rule is designed to monitor high-risk sites, not high-risk populations. She suggested that the issue of monitoring sites needs more study. Some states focus on childcare and schools by designating them as Tier 1 sites. Most high-risk populations use water from Tier 1 sites; however, some in the high risk category are missed. She went on to note that the Lead Contamination Control Act (LCCA) required a recall of lead service line water coolers. Schools that do experience ALEs typically are older facilities and have lead service line distribution systems.

Regu Regunathan asked three questions: First, he wanted to know if EPA has plans to revise the current requirement that limits lead content in plumbing fixtures to 8 percent or if EPA plans to require brass valve testing. He also wanted to know who attended the workshop in December 2004. Finally, he asked if he could be added to the contact lists for upcoming workshops and meetings.

Mr. Ramaley commented that many schools were built 30 years ago or more and have extensive plumbing systems, which can go unused for long periods of time (i.e., summer recess). These systems also receive minimal maintenance. He noted that some lead-lined water coolers are occasionally found in schools despite the recall. The LCR was not designed to identify the specific, highest-risk sites, but only a representative set of residences. Ms. Dougherty explained that the rule was designed to sample homes more likely to have lead problems. Mr. Ramaley also said it is difficult to find commercially available lead-free fixtures (such as meters) for public water supplies that purchased in a competitive public procurement environment.

Gregg Grunenfelder asked if EPA plans to coordinate with the Government Accounting Office (GAO) regarding the LCR National Report. Mr. Grunenfelder said that both organizations are reviewing the rule, and he thought that the reports might have different findings.

Ms. Dougherty said that she was not sure if EPA plans to meet with GAO before the reports are finalized, but the two agencies have previously discussed the issue.

Sharunda Buchanan suggested that EPA team with the Lead Poisoning Prevention Branch (LPPB) at CDC to define health-based outcomes. CDC's LPPB collects lead poisoning

monitoring data that could be used to assess “pre and post” effects of the lead-reduction program. She suggested that this partnership and the data could be used to answer the question “How effective is my lead reduction plan?”

Michael Baker asked Mr. Bergman to explain the intended purpose of the LCR National Report. He asked if the purpose of the report was to promote the need for additional rule changes or to identify other deficiencies. EPA answered that the report would address implementation and training issues, lessons learned, and possibly rule changes. Mr. Baker also asked EPA to consider whether making a detailed assessment of a specific rule without looking at the rule in the context of the state’s overall drinking water program could lead to a misunderstanding of the state’s ability to implement the rule. Mr. Baker said limited resources may affect rule implementation and the report should consider program priorities.

Mr. Bergman responded that the 10-State review began as an assessment of the accuracy of 90th percentile values in SDWIS/FED, a review of the accuracy of these 90th percentile calculations, and a review of how the rule has been implemented.

Mr. Ramaley said Ms. Buchanan’s comment on “pre and post” data is a good way to begin the process of identifying performance measures.

Nancy Beardsley asked how the states were selected for the LCR review.

Mr. Bergman responded that one state was selected in each region. Five of these states were already scheduled for data verification, and the five others were selected based on other factors.

Mr. Bergman made a proposal to the Council. He said that although public education (PE) was designed to help people make decisions about their drinking water, the information received by consumers varies widely. Currently, the rule is written to require that PE (using the mandatory language and method of delivery) be the first step after an ALE. He asked the Council to consider whether this is the best course of action or if the language and delivery methods should be changed or tailored to specific audiences. Mr. Bergman went on to say that after the DC WASA event, a sense of urgency was not communicated to the public. EPA is concerned whether DC WASA’s PE activities reached consumers with children and whether the required language was clear in helping people who were at risk understand what to do. He said because there is no way to evaluate outreach activities, so the dissemination of PE needs to be reconsidered.

Mr. Ramaley commented that a recent independent survey of consumers of his water system found that less than 30 percent of customers even recall receiving a consumer confidence report.

Dr. Regunathan reminded the Council of a recent study that showed 60 percent of people surveyed are concerned with lead in drinking water.

Blanca Surgeon made three points: water systems should convey the need for more

homeowners to take responsibility for lead issues. She said that the PE message does not convey the urgency of the matter, which is that the water system delivers clean water and the lead contamination is coming from the home. She suggested that the PE language be changed to convey this message. Second, she explained that consumers should be educated on economies of scale issues and about the cost differences between long-term and short-term plumbing changes. Third, she suggested that EPA work with partners to create training on how schools and childcare facilities can protect themselves from lead.

Rebecca Head asked if faucets or pipes are responsible for lead contamination because faucets are cheaper and easier to change.

Mr. Bergman responded that there are no clear data to show which components cause contamination.

Mr. Regunathan countered that blame should not be placed on the homeowner because systems are responsible for preventing the water from being too corrosive.

Ms. Surgeon urged the Council to consider sharing the responsibility of lead contamination with homeowners.

Mr. Bergman said that the biggest problem with Washington's D.C. was that the water system's was not optimizing corrosion control; the water system has been successfully in significantly reducing lead levels. On the broader issue of lead, EPA and GAO believe that the current PE language is not a clear statement because it does not tell homeowners where the high levels are or how to deal with an ALE. He asked the Council to consider whether there are ways to differentiate the message between homes or convey messages specifically for homeowners with children under 6 years old. He also asked them to determine whether current outreach materials are sufficient or if they need to target a specific audience, such as schools and pediatricians. Mr. Bergman also asked Council members to determine whether guidance on flushing should be made mandatory (and standardized in terms of length of flush). Finally, in terms of communication, Mr. Bergman asked whether systems should be provided with guidance on forming a task force to improve communication between water systems' personnel and community groups. These are big issues that a subgroup could address.

Ms. Dougherty suggested that the language for PE should be changed, but preliminary comments on the topic have led to conflicting opinions on how to change the language. She said that EPA is looking for a cross-group perspective to make improvements to the LCR and is confident that NDWAC can help. EPA wants to tackle this challenge right and find language that allows for some flexibility.

Mr. Ramaley said that communicating the risks associated with LCR without scaring people is key. He reminded the group of a presentation made during the December 2004 meeting where it was found that some children in Washington, DC had elevated lead levels, but the findings did not identify drinking water as the apparent cause or the source of the exposure.

Ms. Dougherty suggested that NDWAC form a workgroup to provide recommendations to revise the PE requirement or to provide further guidance on the rule.

Ms. Beardsley asked what EPA's schedule is for this effort.

Ms. Dougherty said that the time frame is 6 to 8 months in order to be included with other LCR revisions. She envisions that the workgroup will be composed of three NDWAC members and additional stakeholders with drinking water or health expertise and will meet two or three times.

Mr. Schwartz asked if there would be any parallel efforts to address Mr. Bergman's other points.

Ms. Dougherty said there would be other rule changes, but the focus of the subgroup would be to change PE language. She suggested that the changes should include a requirement to notify homeowners who have high lead levels in their homes. She said she anticipates that the workgroup will meet two or three times.

Lynn Thorp agreed that it is a good idea to take advantage of a quick turn around by involving people with expertise in the drinking water and health fields.

Mr. Ramaley asked the Council members if they were ready to vote to form a workgroup.

MOTION

John Betkoski formally moved to create a workgroup to identify changes in the required public education (PE) language for LCR.

Dr. Head seconded the motion.

The Council approved the motion unanimously.

The following Council members volunteered to be part of the workgroup: Perialwar (Regu) Regunathan, Blanca Surgeon, Lynn Thorp, and Gregg Grunenfelder.

Workgroup Charge:

Dr. Regunathan read the charge for the Workgroup on Revised Public Education Requirements for the Lead and Copper Rule.

- Review the current lead public education requirements to find and define the need for improvements and make recommendations accordingly.
- Develop language for communicating the risk of lead and a suggested response to the public.

- Define the delivery means to the public.

The workgroup established a target date of May 2006 to complete these tasks.

Logic Model - Ron Bergman, Acting Chief Drinking, Water Protection Branch - OGWDW

Mr. Bergman said that the purpose of the logic model is to take a “big picture” look at the Public Water Supply System (PWSS) program to determine whether there are issues that need to be addressed. The logic model was developed in response to a recent OMB assessment of the program. All other federal agencies are undergoing a similar review as an internal tool. OGWDW has been developing this logic model for the past 6 - 7 months. EPA’s next step is to develop performance indicators that fit into the model. Once these indicators are developed, EPA will find states in which to pilot the measures.

Asked about EPA’s process for developing these performance indicators (or measures), Mr. Bergman said there is a workgroup composed of headquarters and regions that is currently charged with brainstorming measures. EPA is trying to find one state per region to start working with EPA to develop indicators beginning in July 2005. Since this discussion was such a last-minute addition to the agenda, EPA pledged to send out a more-detailed explanation of the logic model process.

Mr. Ramaley noted that the logic model displays the intricacies of designing regulations to meet long-term goals. EPA currently lacks detail and data on whether it is hitting its long-term target.

Ms. Dougherty added that EPA has defined performance differently in the past. EPA is focusing on whether better measures can be developed.

Mr. Baker pointed out that the logic model already shows how EPA’s activities relate to reduction in risks and how that results in public health protection. He agrees that inserting new indicators is a good idea. The logic model does a good job of providing a framework for analysis, but it seems like NDWAC’s discussion should build into the logic model’s indicators.

Ms. Dougherty said that there are two parallel discussions on the same topic; one is the Inspector General’s investigation into all of the individual components of the PWSS program, while the other is the effort to look at the entirety of the PWSS program (which is the source of this logic model).

Steve Heare explained that EPA is playing catch-up and needs to pilot this effort in states to determine how it works. EPA is developing a strategic plan into which this logic model will feed. EPA is behind where it needs to be.

Mr. Ramaley commented that EPA is good at developing the innards of planning, but not as good at developing outcome measures. It comes back to defining performance goals: What is high performance and how would you know it if you saw it? Current performance measures are

binary in nature (in compliance or not in compliance), which is insufficient.

Brian Wheeler suggested that the first step should be defining the strategy of the program and then defining indicators that work with that strategy. That is where we are now. We are not very close to developing true performance indicators.

Mr. Ramaley reminded the Council that at the December meeting, the group discussed that the current MCLs represent a tripwire, which if exceeded, show a potential hazard of exposure. If all systems are below these tripwires, we assume that we have protected public health. The problem we discussed is that full compliance, being under the tripwire, does not ensure safe water and vice versa.

Mr. Schwartz commented that complying with regulations is not the only way to protect public health. For example, there is no regulation to move people from unsafe private wells, but doing so protects public health. Improving public health is a better goal than being in compliance. Too bad we cannot measure public health protection rather than MCLs.

Next Steps for the Drinking Water Program Performance Indicators/Measures

Mr. Ramaley explained that the first step is determining the shortcomings of current performance measures. At the last meeting, this analysis began with a discussion of strategic goals. Then, the Council found it useful to adopt the pyramid of performance from Ohio, which coincided with the CDC's levels of hazard, exposure, and health outcomes. NDWAC could consider forming a workgroup at this meeting to design a process to develop performance indicators and then to develop those indicators.

Mr. Wheeler noted that the lack of connection between public health and the regulatory arena is a big problem. Since EPA is on the verge of finalizing three more rules, it has a chance to develop new baselines and benefits measures.

Jeffrey Griffiths (via telephone) said that the biggest problem confronting this issue is the lack of data. He provided details about an article in *Emerging and Infectious Diseases* on a study in the United Kingdom, which found that investment in drinking water treatment and infrastructure resulted in a significant decrease in the levels of *Cryptosporidium*. How can we show improvements in endemic disease control? We cannot do it nationally, but we may be able to do local studies that allow us to assign success rates to a facility that correspond to public health protection. We can develop reasonable assumptions that allow us to extrapolate to national conclusions using good data on the types of treatment employed. He will e-mail the article on *Cryptosporidium* to Clare Donaher.

Mr. Baker said that there are two key areas where measures are needed. First is reductions in exposure, which can be approximated with compliance success (the focus of the logic model). Mr. Baker said that more can be done with existing data, and EPA needs to use those data better to measure risk reduction. But the workgroup also needs to boil down its ideas on measuring

public health benefits.

Dr. Head commented that Maximum Contaminant Levels (MCLs) focus on hazard, but they do not actually measure exposure or health outcomes. She noted that CDC is working on improving exposure data and suggested that NDWAC develop some pilot projects that can close this circle.

Bruce Florquist explained that many developed countries use risk assessment approaches, or risk management, rather than compliance. He also said there is a recently finalized report on this subject.

Mr. Grunfelder responded that it will be difficult to measure health outcomes because most rules did not focus on clear health outcomes, but rather on risk. For example, the Lead and Copper Rule focused on lowering lead exposure for children, but never showed that exposure is related to health outcomes. It is hard to go back and measure health outcomes. He suggested that compliance may actually be the correct measure.

Dr. Griffiths (via telephone) said that there are data showing systems with boiled water advisories have more disease, but depending on historical data is problematic. It will be very hard to go back and measure health outcomes.

Mr. Ramaley explained that this performance indicator effort was triggered by OMB, but is not driven by it. It makes sense to measure benefits, even if measuring past benefits will be difficult. He said that NDWAC has the opportunity now to get this right for future regulations. He suggested the effort may have to rely on localized data.

Dr. Regunathan noted that many of EPA's regulations address pollutants that cause chronic health effects, which will present a problem in trying to measure because of the delay. He suggested that one option would be to group MCLs into three categories: acute, non-acute (e.g., carcinogens), and other. Then, EPA could try to focus on measuring the health effects by group. Acute benefits can be measured. Also, non-cancer-causing inorganics, such as lead, may be possible to study.

Mr. Ramaley responded that, obviously, measuring actual health outcomes is the most desirable, but it may not be possible with carcinogens or other long-term, chronic health impacts. For these chronic contaminants, exposure may have to suffice.

Ms. Surgeon asked whether data from other parts of the world where water treatment is not so advanced could be used as a baseline for health outcomes. She suggested that the Council also consider other benefits generated by the PWSS program, such as improvements in water treatment technologies, PWS service areas, and tracking of contaminant occurrence.

Ms. Thorp responded that some things cannot be measured that way. Quantifying public health is next to impossible. For instance, when vaccinating, public health officials measure the number of people who were vaccinated, not the number of disease cases avoided. There should be some

way to say that there is a real, measurable benefit to keeping harmful substances out of the body. She asked the Council to consider what other countries are using for performance measures. There are different ways than just measuring avoided health outcomes.

Mr. Wheeler pointed out that the Council's discussion was going around in circles and approaching performance indicators piecemeal rather than holistically. He said the resources EPA is spending on security would be better spent on improving our monitoring and information systems. Systems cannot be made immune to attack; however, if a system installs membrane technology to handle TTHMs, the technology creates many other benefits, including security benefits.

The World Health Organization concludes that a large percentage of disease in the world is attributable to the water supply. Dr. Regunathan suggested that one way to develop a benchmark is to look at other countries such as India.

Dr. Buchanan commented that prevented health effects is the key outcome to measure. The goal is to develop performance measures around health-based outcomes; it is a hard goal, but EPA cannot avoid it. She suggested that EPA may want to take a tiered approach, assuming benefits is not enough anymore.

Ms. Dougherty responded that EPA is working with CDC and other partners to develop Waterborne Disease Outbreak (WBDO) measures. EPA is also working with CDC to identify what data already exist for acute and non-acute health effects and contaminant exposures. Even if we cannot get there, we want to get close.

Mr. Baker asked whether the Council should focus on exposures or elusive health outcomes. He said that OMB needs to hear that it is a good idea for EPA to develop these measures, but that reasonable measures can be developed based on exposure.

Ms. Dougherty responded that EPA would prefer to focus on higher level measures. The seriousness of OMB's intent came through with the President's FY 06 budget request, which used CDC's data on the number of WBDOs. The problem on that reliance is that WBDO is only one piece of the federal program. She reiterated that OMB is very serious about moving from outputs to outcomes.

Mr. Ramaley summarized the discussion. We can do better at the national level; the issue is how, not if. Each piece of the national program could be appropriately measured, but there are many goals that cannot be measured. He asked "What problem are we trying to solve?" and "Is there a performance measure that fits (either a public health or a hazard indicator)?" He suggested that developing these measures should be part of the regulatory development process. Another complication is that all of the treatment efforts are inter-related.

Dr. Head pointed out that the Council first needs to develop the performance indicators and then identify the data needed to gauge these indicators. The data collection will involve massive

education of health care professionals such as doctors.

Jeff Taylor said that this discussion has moved into the policy arena. From a policy perspective, there are a number of levels for performance indicators. The policy question is, “How high do you want to go?” He asked EPA. “Does OMB want EPA to prove the past or prove the need for the future?”

Ms. Dougherty responded that OMB is asking EPA to demonstrate effectiveness of using federal money.

Dr. Regunathan cautioned that the program in place to trace WBDOs is not very robust because the information is voluntary. He suggested that relying on voluntary data is worrisome if the data are also being used by OMB or the President. He reiterated that the monitoring needs to be more robust.

Dr. Buchanan responded that CDC's numbers are under-reported, but CDC is trying to make the program more robust. She said that despite its flaws, the program is still a valid indicator.

Dr. Regunathan repeated that the program is voluntary and the data are poor; the data quality can vary from year to year regardless of public health effects. He said that the data should not be used to make judgments about the water program.

Mr. Ramaley agreed that the links between EPA, the drinking water community, and local health officials need to be improved. He said that it is good to have goals and measures, but those measures are only as good as the data and monitoring systems in place.

Public Participation

Alan Roberson from American Water Works Association (AWWA) provided comments on three items: Lead in Drinking Water, Performance Indicators, and Security.

- Mr. Roberson commended EPA for a good job on the national review of the LCR. He said that AWWA supports the formation of a workgroup to address the PE requirement of LCR. He asked if EPA had plans to form workgroups in the future to address issues such as boil water notices and arsenic. Mr. Roberson reported that AWWA is currently developing a series of reports on: 1) lead at childcare centers and schools, which is intended for drinking water operators, 2) simultaneous compliance issues, and 3) LSLR.
- Mr. Roberson said that it is important to tie indicators to public health outcomes. While AWWA supports drinking water regulations such as Stage 1 DBP, he indicated that data on the incidence of bladder cancer is conflicting. He said that the Stage 1 DBP rule has obvious public health benefits, but it is important to understand existing data before constructing drinking water regulations. He urged EPA to invest in resources to address these issues prior to promulgating drinking water regulations.

- He commended EPA and NDWAC on a job well done on the Water Security Working Group’s document. Mr. Roberson commented that the 14 features of an active and effective security program are on target with developing a security culture. He said that the next challenge is implementing these features. AWWA is currently working to develop a security culture and has prepared a New Employee Information Package. AWWA will also develop training modules aimed at different employee groups such as customer service professionals, meter readers, and pipe layers. Mr. Roberson identified three concerns with the report:
 - ▶ it does not provide any recommendations on how to measure the effectiveness of a security program.
 - ▶ the term “high security” is not defined.
 - ▶ It may lead some systems to under-report the amount of hazardous chemicals that are on site because the report does not address risk/risk trade-offs.

Mr. Ramaley commented that several TTHM surveys conducted since the promulgation of the original rule show that exposure levels have decreased significantly, and it is likely that HAA5 levels have dropped as well. He also said that acute reproductive developmental effects should show improvement in the short term, while bladder cancer avoidance will not show up yet.

Mr. Roberson responded that bladder cancer levels are flat because there is likely a latency period of 40 to 50 years. He said the data show that industrial activities conducted between 1935 and 1960 did not affect bladder cancer rates. Analysis of miscarriage data is complicated by the presence of confounding factors.

Mr. Ramaley commented that it is worth reviewing data on carcinogens; however, it may be difficult to gather and study the data. In addition, creating performance measures for security will be just as difficult (if not more difficult) than creating measures for public health.

Mr. Roberson suggested reviewing a matrix of security indicators developed for Dulles Airport.

Mr. Ramaley commented that many security indicators are binary in nature, much like compliance with MCLs.

Mr. Roberson responded by saying that there is a wide range of indicators that could theoretically be attained and useful. Many of these are difficult to reach, but there are some that can get you close to where you want to be.

DAY 2 (June 2)

Mr. Ramaley summarized the discussion from the previous day by saying that EPA needs performance measures for how well the water regulatory program has worked in enhancing public health. These indicators are different from those measures needed for specific rules. NDWAC's discussion tended to mix ideas at two different levels, but EPA needs a bigger picture framework for overall program performance.

Dr. Head asked if OMB has tried to look at the CDC for results.

Ms. Dougherty responded that OMB is focused on outcome measures of performance. EPA sees compliance as an outcome measure, but OMB views it as an output. This is an honest disagreement. She said that OMB thinks EPA should have health-outcome measures of avoided disease.

Mr. Ramaley said that CDC's data are the only health-outcome data currently available.

Dr. Head commented that the Council needs to identify the outcomes first, which will help them identify the indicators needed.

Mr. Ramaley confirmed that is the Council's goal.

Mr. Grunfelder asked what EPA's timeline is for their next strategic plan.

Ms. Dougherty responded that the development of EPA's strategic plan will begin in July 2005, but said it can take up to 1 ½ years to develop. The strategic plan is expected to take effect in 2007 or 2008.

Mr. Grunfelder said that although NDWAC cannot satisfy EPA's immediate needs, it can form a subgroup to work on developing performance measures for EPA's strategic plans.

Mr. Ramaley confirmed that is the Council's goal.

Mr. Baker pointed out that one level of indicators is the highest level and that seems to be what OMB is asking EPA to develop. He also noted that one issue is timing and said that it sounds like EPA already has several similar efforts underway. He suggested that EPA needs to develop these performance measures with CDC in the long run because it is not possible to develop program measures in the short term. Mr. Baker said that exposure indicators could be developed and added to EPA's strategic plan. He asked, "How do we get OMB to give us time so we don't have to provide incomplete measures?"

Ms. Dougherty responded that EPA's commitment is to include new performance measures in its strategic plan; though EPA acknowledges that the process might be iterative. We do what we can now and the best we can do in the long term.

Mr. Wheeler commented that some data are available on biological contaminants that can be measured in the short term; however, chemical exposure data will take longer to measure. He suggested that the Council not lump biological and chemical together.

Dr. Regunathan said that to measure long-term effects, the contaminants should be segregated by short-term and long-term effects, into categories, and then iterate goals.

Dr. Head said that one problem is that there are limited data on exposures, only data on hazards are readily available. She said it is unclear what is in people's bodies, and the costs are very high for measuring exposure, which means that the discussion is back to trying to connect hazards to public health outcomes. She stressed the importance of showing that by limiting exposure, public health is improved.

Dr. Buchanan responded that it is very hard to predict health outcomes because even if you know what exposure has taken place, it is unclear what that exposure means.

Mr. Ramaley said that it is no surprise that many performance measures that can be considered at present are microbial in nature. In 1991, EPA discussed balancing the risks from byproducts with the risks from biological agents. On the microbial side, we understand health outcomes well. We know outcomes, but we have poor information on occurrence. On DBPs, we have large amounts of occurrence data. That is how many systems are set up. But we don't know much about outcomes from chemical contaminants because the ties are not firmly established. In particular, it is difficult to estimate long-term health outcomes at low environmental levels. On the microbial side, we have some data that are good and could be improved; on the chemical side, we have very little data. Performance measures are the new reality. At the national level, we need to demonstrate the efficacy of the water program.

Mr. Ramaley also said that most people recognize the need for performance measures, but to develop these measures will require a cultural shift. Utilities are frustrated at the local level because operators cannot tell ratepayers what they are getting for their investment (relying on a leap of faith that public health is being protected). Yet too much pressure too soon can wreck the process. OMB is pushing EPA in the right direction. One key will be healthy partnerships that extend beyond drinking water and into the public health field. For instance, CDC needs to extend its routine surveillance to include drinking water contaminants. Current efforts to track WBDO do a poor job of measuring endemic levels, which needs to be improved. We also need better measures for DBPs and long-term health effects. If we work together, we should be able to estimate developmental and reproductive effects.

Asked to elaborate on what he meant by telling customers what is being done with their rates, **Mr. Ramaley** explained that his system recently invested in ozone treatment, but he cannot tell his customers how much safer the water is (what public health benefits have been achieved) with ozone treatment in place.

John Betkoski said that it is good to educate the public, but no one reads utility inserts or CCRs. Water is still not at the forefront of people's concerns.

Mr. Ramaley said that when his customers ask whether their water is safe, he can answer "Yes, compared to rest of the world." But "safe" is a relative term. Risks are a matter of prioritization.

Ms. Surgeon commented that people are aware of and value clean water, but she asked the group for whom are the data being collected. She suggested that health outcomes can be estimated using computer models.

Mr. Ramaley agreed that computer models do exist, such as those for DBPs, but he has not seen anything yet that can predict the regulatory impact of all drinking water standards.

Ms. Dougherty responded that computer models have a huge degree of uncertainty and cannot always identify the causal link. The uncertainty is so broad that summing the estimates can be difficult. EPA is more interested in what can be measured in the real world.

Mr. Ramaley said that modeling techniques are useful for screening contaminants, but the precision is not very good.

Discussion of What to Ask OMB

Mr. Wheeler suggested that the Council ask about OMB's understanding of what it wants. Before moving forward, the Council needs to understand why it is pursuing these changes; what it is trying to accomplish; what it is looking for; and, why.

Dr. Head said that OMB could help the Council focus so that the discussion can stop going around in circles. She also said that the Council needs to know OMB's timeline.

Mr. Schwartz commented that the exercise of developing performance measures seems like it might be a way to justify bean counting (i.e., rationalizing investments to ratepayers). The water industry is making achievements in protecting public health, but how much we are protecting that is another matter. He asked, "Since the regulations were based on sound science, is not complying with these regulations enough to believe we are protecting public health?"

Ms. Beardsley said OMB needs to express what it is that they want to know.

Ms. Surgeon said the Council needs to know if this change is tied to the current administration or whether this change is permanent.

Dr. Regunathan urged the Council to tell OMB what can be accomplished in the near future, the not too distant future, and the far future.

Dr. Buchanan said that CDC is going through the same process. She asked, "How much

coordination is taking place at OMB between CDC's efforts and EPA's?"

Mr. Ramaley, in response to member' comments such as "Are we just justifying bean counting?" and "Is this useful?", said that many others share the frustration of not being able to quantify the health impacts of their industry. He said that the entire drinking water community has made a leap of faith that sound science in regulations leads to public health protection, but asked "Is that leap enough?"

Mr. Schwartz commented that it is not too difficult to quantify and measure the benefits of delivering clean public water to people instead of relying on private wells. But not all of these benefits are attributable to the Safe Drinking Water Act (SDWA).

Mr. Ramaley said that since there needs to be so much coordination between EPA, CDC, and other health agencies, it is important to ensure that OMB understands the relationships among these organizations.

Dr. Regunathan pointed out that even if OMB is not asking for performance indicators, it is not bad to do. The public can benefit from more information on its drinking water.

Ms. Dougherty responded to Mr. Ramaley saying EPA has been working with the CDC since the 1996 SDWA Amendments to measure public health benefits; yet, there has not been much success so far. Together, they have tried to do epidemiological studies and before-and-after studies to little avail.

Dr. Buchanan responded by saying most of the CDC-EPA efforts have been focused on microbial issues. One step that has not been taken is getting data from local operators.

Ms. Thorp asked, "What is the investment needed in monitoring, analyzing, processing, and reporting to overcome this leap of faith?" She said if monitoring and reporting efforts do not start now, the Council might have this same conversation in 25 years.

Mr. Ramaley said even if performance measures are defined, it will be difficult to obtain buy-in of the experts on what the data indicate. Performance measures are good, but the question is, "What do you measure?"

Council's Conversation with Benjamin H. Grumbles, Assistant Administrator for Water

Ben Grumbles thanked NDWAC members for their service on the Council, especially their hard work on developing performance measures and indicators. He also said that it is beneficial to have additional participation on the Council, such as CDC officials, and to have ongoing discussions with OMB during face-to-face meetings. Mr. Grumbles also commended the WSWG for their excellent work.

Mr. Ramaley commented that it will take time to develop measures. CDC needs to expand its

data to include health-based outcomes as well. He asked how patient OMB will be to ensure that NDWAC and EPA can do “the right thing” with regard to developing performance measures. He indicated that it will take time to form a subgroup and build consensus and that the subgroup will need to form partnerships, collect data, and improve coordination to do so.

Mr. Grumbles responded that there is no formal schedule or timeframe; however, there are some internal deadlines that will need to be met.

Ms. Thorp said that a tracking or surveillance system will need to cover more than just EPA’s water program. She wondered if EPA is planning for that.

Dr. Head commented that there is no national health system and, therefore, physicians are not connected to a national health care reporting system such as in Canada and the UK. She indicated it will be difficult to gather data because of the lack of a national health care system.

Dr. Buchanan noted that physicians will need to be educated about the drinking water industry and its effects on health.

Mr. Grumbles asked about the current state of rural water systems. He was interested to know if rural water systems are making progress implementing drinking water regulations.

Mr. Schwartz reported that systems in rural areas contribute to the increase in public health due to the elimination of private wells and increase in access to public water supplies. He said this increase in access is not without costs, however, and affordability for small rural consumers is a large issue.

Mr. Florquist said that operator training opportunities have driven improvements at rural water systems.

Ms. Surgeon said that a lot of progress has been made. She reported that sophisticated water systems have replaced water hauling stations in many rural areas.

Dr. Regunathan commented that regulations drive the private sector to create products to help consumers improve private water supplies, which also affects public health.

Conversation with Kevin Neyland, Chief, Environmental Branch, OMB

Kevin Neyland began the discussion by saying that EPA’s performance measures are currently process oriented. President Bush wants a results-oriented approach to federal programs (“Why we do what we do?”). In response to this request, OMB is evaluating programs based on purpose, planning, management, and results, with an emphasis on results. OMB is less concerned about the Performance Assessment Recommendation Tool (PART) number and more focused on what the program did to get that number. Mr. Neyland said that the “R” in “PART” now stands for recommendation, not rating. The goal of the PART is to answer how well each program is

showing results, following the Government Accounting Office's (GAO) "managing for results" mantra. The highest level result is an environmental or health-based outcome, but OMB gives credit for any measure. The goal, though, is to aim for the highest possible measures.

Performance measures are an opportunity for programs to showcase and explain their success. It is not a new concept—performance indicators have been used since 1993.

Mr. Ramaley said that Mr. Neyland's comments are in line with NDWAC's discussion. The Council agrees that health-based measures are the best and have lamented the difficulty in finding these indicators and measuring the appropriate data. One key will be more relationships with CDC.

Mr. Neyland responded that performance measures are a tool to improve the drinking water program. The Government Performance and Results Act (GPRA) goals were very process oriented.

Mr. Ramaley said the Council agrees it will be able to define the process-oriented performance measures first because those are the easiest to define. He asked what OMB's time frame is. He said that the Council has some good ideas, can help, and is willing to work with partners, but results cannot materialize overnight. He explained that EPA needs to expand the measures on WBDO's and work with CDC to improve measures of chemical exposure in people. Looking retrospectively at accomplishments is difficult. The Council believes that focusing efforts on new performance measures will be more fruitful than looking back.

Mr. Neyland responded that OMB needs to work with EPA regarding timing. He said that OMB plans to work with the entire federal government every 5 years. OMB would like measures from EPA on drinking water, but it also realizes that it might take a while. OMB understands that SDWIS has problems and that baselines need to be established. OMB is not trying to be unreasonable, but it does want to get its recommendations implemented. At the end of its 5-year cycle, some programs may still be incomplete or low scoring. PART is trying to move things forward in line with GPRA.

Mr. Baker commented that the problem with developing measures for public health outcomes in the short-term is the lack of tools and data. Timing is a key factor. He said that EPA needs to have sufficient time to identify all the right measures and then figure out what data to collect on an on-going basis. Mr. Baker said that the Council might be able to find other non-process surrogate measures for public health protection that can be used in the short term. In regard to the PWSS program's recent score of "results not demonstrated," Mr. Baker asked, "What are the repercussions of this score?"

Mr. Neyland agreed that surrogate measures would be good, and OMB is not expecting huge leaps of progress, but any measures have to have a strong rationale. In response to the recent PART score, Mr. Neyland said that the consequences of not demonstrating benefits are budgetary. Budgets are getting tighter every year as the President tries to reduce federal budget

deficits. It is easier for OMB to make the case with solid performance measures.

Ms. Dougherty pointed out that the State Revolving Fund program received an adequate rating, but that was based on the program developing new performance measures in the near future.

Mr. Neyland said that OMB has made it clear that he can no longer give EPA programs the benefit of the doubt; programs need to demonstrate actual results.

Dr. Buchanan asked how much coordination is taking place while OMB analyzes EPA and CDC.

Mr. Neyland responded that while he only oversees EPA and a few other small environmental agencies, he does collaborate closely with colleagues who oversee the CDC.

Dr. Buchanan asked if OMB is thinking about the delivery of services (i.e., prevention-based activities).

Mr. Neyland responded that prevention is the goal and health outcomes are the measure. Prevention is the activity, which should result in a reduction in disease.

Mr. Wheeler said that there is a lot of information to measure benefits, but developing and gathering data is going to be expensive. He asked if resources would be available to fund this effort.

Mr. Neyland suggested that EPA and the Council look into the air toxics program. A recent review concluded that there were no data to measure the reductions in cancers. The air toxics budget proposal after PART included \$7 million to increase monitoring. Mr. Neyland said that OMB will work with EPA to address shortcomings such as SDWIS.

Ms. Surgeon asked if OMB recognizes the impact of drinking water problems on the economy such as the recent experience in Phoenix, AZ. She asked if EPA can claim the economic impact of a safe, dependable supply of water as part of the development of performance indicators and measures.

Mr. Neyland said that OMB has not thought about the economic impact. He said that EPA is currently relying on GPRA indicators, which do not include economic development. OMB will consider this possibility. **NOTE:** On June 2nd, EPA received the following e-mail from a member of Mr. Neyland's staff.

"In today's NDWAC meeting, Blanca Surgeon suggested an idea of measuring performance using economic indicators. I think she used an example of the economic effects of the boil water order in Phoenix. We discussed this idea internally and determined that performance measures should address the intended purpose of the program. In the case of PWSS or the DWSRF, the intended purpose (in section 1 of the

PART) is not economic but rather the protection of public health. While using economic indicators to measure performance could be interesting as a secondary measure, this would not fit well into the PART.”

Dr. Head asked if the increase in monitoring for the air program was for monitoring of air or monitoring of exposure levels and health effects in people? If it was monitoring of air, she pointed out that the data still require extrapolation to get to a human health impact.

Mr. Neyland agreed with Dr. Head’s observation. He said that the air program was extrapolating based on exposure over a long period of time (working within the definitions of the program).

Dr. Head asked, “Doesn’t the absence of negative health effects equal success?”

Mr. Neyland responded that conclusion could be true.

Dr. Regunathan asked how can EPA capture health effects that are 20 to 30 years down the road if OMB’s timeline for the development of measures is 5 years.

Mr. Neyland responded that it is possible to complete this process. He said that EPA’s budget is \$8 billion; so comparisons are inevitable. He suggested that the Council needs to advise EPA on how to measure these future benefits.

Dr. Regunathan responded that arsenic is an example of where the benefits are long delayed.

Mr. Neyland wondered whether systems that remove arsenic remove everything else.

The Council members explained that is not the case.

Mr. Ramaley said that the Council believes it can develop a plan for the short term, but that results will take a while.

Mr. Neyland responded that OMB understands this effort will take time, but Congress and the public expect EPA to complete the task.

Mr. Florquist asked what other organizations EPA and NDWAC should consider working with since it is difficult to obtain health care data.

Mr. Neyland responded that the Council members should work with CDC to identify additional organizations.

Dr. Buchanan said that CDC's most significant partners are local health departments and organizations such as the National Environmental Health Association.

Mr. Taylor commented that setting performance indicators is not a big deal because EPA has performance measures, but these have been deemed insufficient. He said "Is the water safer?" is a public health question. The challenge is marrying what the water industry does to other fields. He also said that the question "How many contaminants have been reduced?" can be answered, but "Is the water is safe or unsafe?" (or "What is the change in incidence level?") is a different question to answer.

Wrap-up on Indicators and Measures

Mr. Ramaley opened the discussion by suggesting that the Council form a subgroup or workgroup to get started on establishing performance measures. His perception of the previous day's discussion is that if the discussion continues, there is some sense that the discussion may end up back where it started. He said that everyone is best served by doing it the right way, and it is very important that CDC participate as a partner.

Mr. Baker said we are talking about making real linkages to human health outcomes. The next best alternative is extrapolating exposures to body counts using science we already have from the development of MCLs.

Mr. Ramaley responded that EPA can present the benefits in terms of avoided body counts. Short-term performance measures for carcinogens will have to focus on exposure. In standard setting there are many uncertainties and disagreements. This will mean that the performance measures might be more controversial. It would be better for us to come up with real measures.

Ms. Dougherty suggested that the Council look at what air toxics program did using peer-reviewed studies.

Mr. Ramaley said that the Council will need to look at the previous work in this area.

Mr. Grunenfelder said that EPA needs to complete data extrapolations. He said that Congress and the public want a risk-free world. When extrapolations are available, they can examine the extrapolations and decide if the risk they show is too little or too much. EPA will need to employ both extrapolations, in the short run, and real measures, in the long run.

Dr. Head pointed out that EPA's program basis is built on assumptions that are being challenged. She also said that the idea of examining economic impact is a good one.

Mr. Taylor cautioned that if incident rates are examined, the public could become alarmed. He pointed out that the difference between air and water is that water is a finished product.

Mr. Ramaley suggested that the Council move to convene a subgroup or workgroup of NDWAC to help EPA move forward developing program indicators and help the Agency answer the short-term challenge of performance measures. He said that the Council needs to help EPA develop short-term measures based on extrapolation and lay the framework for better long-term measures by working with CDC.

Ms. Thorp asked if a subgroup is easier to convene procedurally and logistically?

Ms. Dougherty responded that it is not difficult to form a subgroup procedurally or logistically if the group is not too large. She also said that EPA can pay for subgroup members to travel to meetings. Given the current state of knowledge and discussion among the group, it might be preferable to go with a subgroup since a workgroup would take longer to establish and get up to speed. She suggested that the subgroup could involve other stakeholders and organizations to help the deliberation.

Mr. Wheeler said that measuring the benefits of industry efforts will benefit both water systems and the rest of the drinking water industry.

Dr. Regunathan pointed out that the subgroup will be large because of the complexity and breadth of the subject. He also said it would be beneficial to include members beyond NDWAC because their involvement will be important to obtain buy-in from other groups.

Mr. Ramaley said a subgroup could move forward more quickly. He mentioned that one possibility would be to obtain buy-in from a FACA committee once NDWAC makes recommendations. For instance, the effort could begin as a NDWAC subgroup that eventually brings recommendations to a larger workgroup.

Mr. Baker said that the real benefit to forming a subgroup is that it takes the discussion to date and boils it down to concrete recommendations that can be taken forward to another group and included in EPA's strategic plan.

Mr. Ramaley suggested that a separate FACA workgroup is needed since this is such a cultural shift in the drinking water community that will require a large change in resources.

MOTION:

Ms. Surgeon formally moved to establish a subgroup that seeks input from other groups. This group will develop concrete recommendations that will be considered by NDWAC and then another committee.

Mr. Betkoski seconded the motion.

Mr. Ramaley added that the subgroup could define an overall mission and strategy by the December 2005 meeting. In addition, the subgroup would recommend the nature of the measures; the partnerships that will be needed to design and implement the measures; the input that will be needed from other individuals and organizations; and, the timeframe for deciding on and implementing the measures.

Ms. Dougherty said that EPA would recommend NDWAC consider keeping the process to one group, rather than two due to logistical and the time constraints.

Dr. Head said that performance measures are not static, which will allow the process to continue and provide ample opportunity to involve other organizations.

Dr. Buchanan urged the group to establish a synergy between EPA and CDC before forming the subgroup.

Mr. Ramaley said that one recommendation from the subgroup should be how to institutionalize the performance measure process.

Ms. Surgeon said the task will require input from many sources, and a smaller group will allow for quicker work and consensus building. She said that the small group can start building partnerships with the CDC and other organizations, such as HMOs.

Ms. Dougherty said that EPA has three parallel efforts involving NDWAC, CDC, and ASDWA working on defining performance measures. EPA will ensure that the NDWAC subgroup has a professional facilitator.

Ms. Thorp suggested that the subgroup should get to work quickly and focus on the short-term issues. Then, once those short-term issues are settled, the subgroup should make recommendations about what EPA should do long term. This long-term effort should include looking beyond what is currently possible. She added that not everyone on NDWAC will be able to serve on the subgroup, and a professional facilitator will greatly help.

Dr. Regunathan reiterated that a subgroup is not sufficient, particularly considering the need for involvement from CDC.

Mr. Ramaley said there is nothing preventing the subgroup from bringing in people from CDC.

Dr. Regunathan responded that CDC's involvement needs to be more formal.

Mr. Ramaley suggested that the subgroup could include more representatives from the CDC than just Dr. Buchanan and added that these CDC representatives may not be at all the meetings. He said that NDWAC is already supposed to be a stakeholder group whose members represent a larger community. He said that defining performance measures is not a one-step process, and the

key is that the subgroup could work more quickly. The subgroup should be formed immediately.

Mr. Baker said that there is still uncertainty about the timeframe for both the subgroup and for EPA's overall efforts. He added that the subgroup will be successful, but asked what the next step is for EPA. He asked if EPA plans to ask NDWAC to convene a larger workgroup or move forward with the strategic plan.

Ms. Dougherty responded that EPA would take recommendation on performance measures and build those measures into its strategic plan. If the recommendations are major, then NDWAC may need to have a special session to discuss them.

Dr. Buchanan noted that CDC divisions try to keep up with what the other CDC divisions are doing. CDC buy-in does not come from one source, but rather from different branches of CDC. There may be differences of opinion within the organization.

MOTION:

Mr. Wheeler formally moved to form a subgroup of NDWAC to work on developing performance measures by using facilitators and calling on other resources, within reason. The subgroup shall work on these issues for the next 12 months.

Ms. Dougherty said the next strategic plan will be final in September 2007, which means that it will be finalized in the summer of 2006. The sooner that EPA receives NDWAC's recommendations the better.

AMENDED MOTION:

Mr. Ramaley amended Mr. Wheeler's motion to include a clause that would ensure any subgroup member whose term expires will be allowed to stay as an active of the subgroup.

Ms. Gelb said she will check on the specifics on EPA's timeline and report back to the Council on Friday, June 3, 2005.

Mr. Baker reiterated that the Council will need the timing, specifics, and all the other details before moving forward.

The Council approved the amended motion unanimously.

The following people volunteered to serve on the subgroup: Mike Baker, Rebecca Head, Jeff Taylor, Lynn Thorp (later rescinded offer), Brian Wheeler, Nancy Beardsley, Regu Regunathan, Brian Ramaley, and Bruce Florquist. In addition, Jeff Griffiths and John Young would be invited. Finally, Sharunda Buchanan and Phil Singer would be asked to provide ongoing input.

Presentation of the Water Security Working Group (WSWG) Draft Document and Specific Findings - Rebecca Head, Health Officer & Director for the Monroe County (MI) Public Health Department and C. David Binning, Director Planning and Engineering Division Fairfax (VA) Water

Dr. Head and Dave Binning presented the Water Security Working Group Report. **Dr. Head** said that she hoped that the NDWAC members would find the report useful for meeting goals in addition to security. She explained that the working group had 16 members, met 5 times, and had a few conference calls.

The group's mission was to recommend best security practices, incentives for implementing security programs, and determine ways to measure implementation. Their goal was to come up with a framework that allowed for flexibility and consistency to coexist.

The report has five themes:

- Recommend minimum expectations for security program outcomes with flexibility to allow utility-specific approaches
- Keep security programs up-to-date and always strive to improve over time
- Create awareness and support for water security
- Invest in water security
- Form strong partnerships

Mr. Binning explained that the report lists 8 findings, or recommendations, on best security practices. He described each in detail.

1. **One size does not fit all.** Water and wastewater systems should use system-specific approaches to security. The report recommends procedures that should be in place, but does not recommend specific mechanisms or technologies.
2. **Security program scope.** Programs should address protection of public health, public safety, and public confidence. Systems must be reliable, including providing sufficient pressure and treatment. They should plan for prevention, preparedness, response, and recovery.
3. **Significant system failures and key threats.** Programs should consider the following failures:
 - ▶ Loss of pressure
 - ▶ Long-term loss of source, treatment, or distribution
 - ▶ Release of on-site chemicals
 - ▶ Adverse impact on public health or confidence
 - ▶ Long-term loss of wastewater collection or treatment
 - ▶ Wastewater collection system used to attack others

Systems should also consider the following threats:

- ▶ Physical disruption of core facilities or related infrastructure such as communication or electricity.
- ▶ Chemical, biological, or radiological contamination of water or infrastructure
- ▶ Cyber-attack on information systems and/or SCADA
- ▶ Wastewater collection system used to attack others

4. **Principles of active and effective security programs.** Programs should be built into the system's business culture at all staff levels. Leadership must commit to security. Systems must establish partnerships and must commit to continuous improvements in security.

5. Features of an active and effective security program. Systems should include the following features in their programs:

- ◆ Make a commitment to security
- ◆ Integrate security into culture
- ◆ Frequently update the vulnerability assessment
- ◆ Identify security priorities and resources dedicated to security
- ◆ Define security roles for staff
- ◆ Establish procedures for intrusion detection and access control
- ◆ Implement protocol for contamination detection
- ◆ Define sensitive information and establish procedures for protecting that information
- ◆ Incorporate security considerations into design, construction, and maintenance of facilities
- ◆ Monitor threat levels and establish procedures for responding to change in threat levels
- ◆ Incorporate security into emergency response plan, test and update plans regularly.
- ◆ Develop strategies for security-related communications
- ◆ Establish partnerships with communities, other infrastructure sectors, and emergency responders
- ◆ Develop system-specific measures of progress in security, and self-assess the system against these measures

6. **Ongoing improvement.** Systems should continually reassess their security programs through regular testing and establishment of goals and schedules.

7. **Improve connections with public health officials and organizations.** Systems should work with all levels of the public health system. Public health data can be the first indication of contamination. Public health agencies can help with providing consistent messages to the public and maintaining public trust.

8. **Government should support development of contaminant monitoring technologies.** Monitoring is currently limited by lack of reliable and affordable technology, lack of guidance for interpreting results, and limited experience.

Dr. Head provided an overview of the recommendations on incentives and how they emphasize supporting systems in implementing security programs. These recommendations include the following:

1. **Negative consequences of failing to address security.** EPA, Department of Homeland Security (DHS), states, and trade associations should conduct outreach on importance of security programs and possible consequences of not addressing security.
2. **Benefits of active and effective security programs.** EPA, DHS, states, and trade associations should develop awards or programs that recognize systems that demonstrate superior security performance.
3. **Voluntary peer technical assistance and review programs.** EPA, DHS, states, and trade associations should support development of a peer review program.
4. **Technical assistance.** EPA, DHS, states, and trade associations, should provide information on different types of technical assistance, including technology verification information.
5. **Security-related materials.** EPA, DHS, states, and other federal and state agencies should help systems get access to infrastructure, support systems, emergency planning, and security exercises.
6. **Funding.** Congress, EPA, DHS, and other federal agencies should support security enhancements with grant and loan programs.
7. **Security costs and rate setting.** Systems' Boards of Directors should recognize costs of security. EPA, DHS, states, and trade associations should help educate boards and rate setting organizations about costs of security programs.

Finally Dr. Head summarized the findings on measures of progress in implementing security, which include the following:

1. **Core measures.** Utility self-assessment should include 13 measures. These measures are each linked to the 14 features of an active and effective security program listed under finding 5.
2. **Additional measures.** Systems should consider additional measures listed in Appendix C.

3. **National aggregate measures.** EPA should be able to say there has been an improvement nationwide. EPA should measure implementation progress in terms of implementation of the 14 features listed in finding 5, security-risk reduction based on high-risk issues identified in vulnerability assessments, and potential reduction of risk associated with utility operations (e.g., switching to safer forms of disinfectant).

After the presentation on the WSWG report, the Council discussed the report.

Mr. Ramaley said that the report accurately reflects the current state of contaminant detection technologies. He emphasized that redundancy in water system design is one of the most effective security practices; it is rare for a system to fail across the board. Mr. Ramaley asked the WSWG to provide more information on the discussion of QUALSERV or a peer assessment program to evaluate a water system based on the 14 features of an active and effective security plan.

Dr. Head responded that the WSWG hoped that water systems would participate in voluntary peer review programs. Mr. Binning concurred that the workgroup believed that peer reviews were needed and valuable, but they did not want to be too prescriptive because there are a number of ways to run a peer review program.

Mr. Ramaley commended the WSWG on a job well done, especially given the tight schedule. He asked whether the workgroup had considered addressing redundancy.

Mr. Binning responded that redundancy was discussed in regards to monitoring. Simple systems could move to more complex monitoring schemes fairly easily, but it is difficult for complex systems to monitor sufficiently.

Mr. Ramaley added that monitoring can provide systems with a false sense of security, particularly if the monitoring is insufficient or at the wrong spots.

Dr. Head responded that public health communication is outbreak specific. She said there is a need to improve water utility and public health communication and suggested the Health Alert Network could be used as a model.

Mr. Schwartz asked how NDWAC should proceed now that the report is complete.

Dr. Head responded that the Council members need to decide the next steps.

Mr. Ramaley said that the WSWG completed the task they were charged with and he suggested that NDWAC can either endorse the report or amend it and pass it on to EPA. He said that the report can also be used to commence a national education campaign on security for utilities and technical assistance providers organized around the 14 elements. EPA could also ask other organizations, such as AWWA, to peer review the report..

Ms. Dougherty said that EPA would use the report in conjunction with its security partners. It will be EPA's job to figure out how to promote this framework in the drinking water community. EPA will make sure that states and utilities are aware of the report. In addition, EPA will need to identify ways to track the progress of implementing the report's recommendations.

Janet Pawlukiewicz reiterated the importance of using this report as a tool for educating local government organizations, creating partnerships, and capturing and measuring success. She stressed the need to work with local government organizations and other partners.

Mr. Ramaley said the local health officials in particular should see the report.

Ms. Pawlukiewicz agreed, noting that health officials are considered first responders.

Dr. Regunathan noted that contaminant detection not only needs to be done in the correct location, but also needs to be timely.

Mr. Ramaley added that detection sounds good on paper, but it is very difficult in practice.

Mr. Betkoski commended the WSWG on a great job. He also remarked that the report is an excellent tool to provide guidance on rate making; NARUC will love it because it helps regulators understand how to evaluate security efforts.

Mr. Binning added that the 14 features of an active and effective security program are intended to be a stand-alone document. The rest of the WSWG report should be used as a guidance document for implementing a security program. He expects EPA to develop complementary products that are more accessible for utilities.

Mr. Schwartz said that the report did not contain definitive recommendations, rather it encourages a security ethic.

Dr. Regunathan asked if anything was lost in an effort to obtain the consensus of the WSWG.

Dr. Head said that everyone was given the opportunity to share his or her view point, but reaching consensus did not necessitate running anyone over.

Mr. Binning said the report asks the reader questions, rather than prescribe a one-size-fits-all approach. If the report had gotten too much into specifics, the report would not have been very useful.

Mr. Wheeler added that one size does not fit all water systems. The report is influenced by the evolution of a water security program since September 11, 2001. Most of the 14 features of an active and effective security program fit with emergency response plans that water systems have already developed for events such as hurricanes.

Mr. Baker said that the report was comprehensive and objective. He added that there is an opportunity to provide additional guidance on the 14 features of an effective plan. Mr. Baker also voiced concerns about aggregated measures of security. Since the program is voluntary, systems may not submit data, so there may not be enough data to accurately measure progress on security at a national level.

Ms. Dougherty said that identifying measures is a good place to start. She asked NDWAC members to consider how to collect and extrapolate the data to a national level, especially since this is a voluntary program.

Ms. Pawlukiewicz said that measuring outcomes would be difficult, because quantifying avoided problems is difficult. Developing output measures is easier.

Mr. Wheeler commented that AWWA has a bench-marking clearinghouse project for the collection of voluntary data. He suggested that this would be a good model to follow.

Mr. Taylor added that other industries, such as power companies and the airlines face the same issues. He suggested that it might be beneficial to communicate with them in order to identify the next steps. The report itself is perfect for a utility manager.

Mr. Ramaley added that security information should be posted on the water Information Sharing and Analysis Center (ISAC), AWWA, and the Water Security Channel Web sites.

Mr. Baker noted that states and systems still have limited resources, which should inform the measuring of benefits (the context of other priorities).

Mr. Ramaley said that we will need to find some way to show results to justify funding.

Dr. Buchanan said that it was important to disseminate the report to associations of local health officials and to the officials themselves (perhaps through NACHHO). She emphasized the need to dialogue with partners at all levels while moving forward with the dissemination of the report.

Mr. Schwartz asked the Council to remember the challenges that face small systems. He added that security at small systems is more about creating a security culture. Residents of small communities can have a false sense of security; they do not lock their own doors. Because of this, it is difficult to change employees habits while on the job. He added that most small system personnel do not believe they will be the target of a security attack. Many small systems may take security seriously, but their plates already are full.

Dr. Head said that many other organizations will have an interest in the report.

Ms. Surgeon thought that the report would be useful for training water system personnel. She said it was also important for systems to include security programs as a separate line item in their annual budgets in order to demonstrate its importance. Due to limited resources, it will be

difficult to fund this program. Ms. Surgeon suggested that larger systems bottle their water and sell it using the revenues for security programs. She added that the bottled water could be made available during emergencies.

Mr. Ramaley said that many systems already bottle their water; however, they are often not allowed to market it. In addition, it is difficult for utilities to compete with private companies.

Mr. Binning recommended that the WSWG provide a written statement of recommendations for further actions and forward the report to NDWAC. NDWAC can then approve the report and disseminate it to EPA and EPA's partners.

Mr. Ramaley recommended postponing a decision on the report until after hearing comments from members of the public attending the meeting.

Ms. Donaher informed the Council that based on a request articulated at the May 2004 meeting, EPA created a compilation of EPA documents for small systems. The information is stored on an interactive CD-ROM and is intended for small systems that may not have access to the Internet. Ms. Donaher said that Jennifer Moller would demonstrate the CD on June 3, 2005.

Mr. Ramaley reminded the group of two action items for June 3, 2005: the charge for the lead public education working group, and a discussion about the time and location of the next meeting.

Comments from Interested Parties

Kevin Morley of AWWA remarked that AWWA is working to integrate the 14 features of an active and effective security program into its other programs. AWWA is partnering with other organizations, including the National League of Cities. Mr. Morley asked what the objective of a contaminant monitoring warning system is, and what would systems be expected to do with the information. In addition, AWWA is concerned with national aggregate measures and whether they will be able to truly gauge progress. Mr. Morley added that he had concerns about establishing a baseline from which to measure. He said in order to do this the term "high risk" should be defined.

DAY 3 (June 3)

Mr. Ramaley announced the agenda for the day.

- ◆ Finalize performance measure subgroup
- ◆ Continue discussion on the security report
- ◆ View EPA presentation on compendium CD
- ◆ Meet with Deputy Assistant Administrator Mike Shapiro
- ◆ Finalize charge to lead public education workgroup
- ◆ Set time for next meeting

Finalize Performance Measure Subgroup

Mr. Ramaley noted that the subgroup can develop recommendations to use in the strategic plan by September, but he cautioned that it would be difficult to complete anything more in the limited time available.

Mr. Baker noted that the Association of State Drinking Water Administrators (ASDWA) was working with EPA and would have a report on performance indicators (PIs) completed by July 2005. He emphasized that the long-term indicators should be based on partnering with other organizations to make better links between exposure and human health. In the shorter term, EPA could rely more on exposure data and extrapolating between exposures and human health outcomes. He added that the subgroup would need a more complete understanding of what data are available from CDC, but that until then it should focus on ASDWA's report.

Mr. Ramaley recommended that the PIs workgroup charter be amended to develop recommendations for NDWAC's consideration using the following timeline: recommend changes to current measures (moving them towards outcomes) by September for inclusion in EPA's strategic plan; recommend new performance measures based on public health outcomes as soon as possible; and identify future performance measures that need further development in the long run.

Ms. Dougherty recommended that the subgroup first focus on picking the low-hanging fruit between now and September so that some of the recommendations can be worked into EPA's new strategic plan. The subgroup can then take more time for the longer term pieces.

Mr. Ramaley said that he believes the subgroup can develop some recommendations by September and can develop more meaningful performance measures in the long term, which can be discussed at the May/June 2006 NDWAC meeting.

MOTION:

Mr. Taylor moved that the workgroup amend the charter to develop recommendations that can be used to move the program forward to identify future outcomes.

Dr. Head seconded the motion.

The Council unanimously approved the motion.

Mr. Ramaley asked that workgroup members submit their summer schedules to Clare Donaher by Monday, June 6, 2005, so she can schedule the next meeting.

Mr. Wheeler suggested that people start thinking now about getting input from others. He suggested asking someone from the International Water Association to attend.

Mr. Ramaley asked Dr. Buchanan to gather information and determine who at CDC (and elsewhere) the workgroup should include. He recommended that the first meeting of the workgroup be an educational meeting.

Dr. Head asked that some of the workgroup meetings be conference calls.

Ms. Dougherty said that EPA might be able to set up video conferences.

Water Security Working Group Report Recommendations

Mr. Ramaley asked if there were any other comments on the water security report. The Council can recommend that the workgroup do additional work, or it could endorse the report based on yesterday's discussion.

Mr. Baker said there is a need for more detailed guidance in addition to what is already available. He suggested that the Council ask EPA to identify guidance materials that already exist, which can be linked to the 14 elements of a security program. This will help EPA identify what other guidance materials are needed for states and utilities.

Ms. Surgeon asked if anyone addressed AWWA's concerns regarding the definition of the term "high risk."

Mr. Grunfelder said that the WSWG did not want to be prescriptive and define the term "high risk." He suggested that systems define the term for themselves by using their vulnerability assessments. This is part of the one-size-does-not-fit-all approach.

Dr. Head agreed that flexibility is important, although it will be difficult to measure security nationwide if there is no baseline. She said that as water systems implement the 14 features of

an active and effective security program, the systems will raise the baseline. She said it is up to the systems to determine the best way to implement this program. Since it is nonregulatory, there will be a great deal of variability. In response to Mr. Baker's call for more guidance, she noted that the report did contain a bibliography.

Mr. Baker responded that although he thinks it is good for the framework to be flexible, he still believes that states and systems need more guidance on how to implement the elements.

Dr. Regunathan agreed with Mr. Baker that systems need to receive guidance. He suggested adding a "toolbox" as an appendix to the report or as a follow-up document. He suggested that NDWAC should make this recommendation to EPA.

Ms. Dougherty said that EPA is planning to create something similar to the toolbox organized around the 14 elements.

Ms. Pawlukiewicz agreed and said that during the original WSWG discussion there was an agreement to keep this report a high-level overview document that could direct readers to detailed guidance materials.

Mr. Ramaley recommended asking EPA to identify performance measures for security by the November 2005 or May/June 2006 Council meetings.

Mr. Betkoski said he plans to share the report with the Connecticut Department of Homeland Security and other organizations in his state. This framework will also help the legislature understand the security challenges without reinventing the wheel.

Mr. Taylor added that currently there are dozens of toolboxes available for large and medium systems.

Mr. Baker stressed the importance of defining security measures. He suggested that EPA return to NDWAC with suggestions on how to do this.

Mr. Ramaley suggested that EPA and others need to reorganize existing toolboxes so they fit with the framework of the 14 features of an active and effective security program. The main accomplishment of this report is providing a structure for EPA and other organizations to organize their tools around.

Mr. Ramaley recommended that NDWAC endorse the report with a transmittal letter and forward it to EPA. The transmittal letter should ask EPA and other partners to organize their existing tools around the report's 14 elements. In addition, it should ask EPA and interested parties to develop additional guidance needed in the resource toolbox to help water and wastewater utilities and states as they implement the 14 security plan elements. In addition, the letter should request that EPA report and update NDWAC on the distribution of the report, the status of implementation, and on the development of security performance measures by the next

full Council meeting (i.e., within 6 to 12 months).

MOTION:

Mr. Baker made a motion to accept the report and transmittal letter as submitted by the workgroup.

Dr. Head seconded the motion.

The motion was unanimously approved by the Council.

MOTION:

Ms. Thorp made a motion to endorse the report and transmit it to EPA. As part of the motion, the Council requests that EPA and other interested stakeholders and partners identify additional guidance to include in the toolbox of resources for the 14 features of an active and effective security program for water and wastewater utilities and states. Finally, the Council requests that EPA report and update NDWAC on the distribution of the report and on the development of performance measures by the next full Council meeting (i.e., within 6 to 12 months).

Dr. Regunathan seconded the motion.

The motion was unanimously approved by the Council.

The transmittal letter follows:

In response to guidance from the National Drinking Water Advisory Council (NDWAC), the Water Security Workgroup (WSWG) forwards this report for consideration and approval by the NDWAC and recommends that it be forwarded to EPA for use in support of the National Drinking Water Security Program. The WSWG invites NDWAC attention to the use of this document by the water sector and also to EPA's National Drinking Water Partners. Recommendations addressing each constituency can be readily identified by focusing on the "should" findings throughout the report.

Presentation on Compendium of EPA Resources

Jennifer Moller of the Drinking Water Protection Division of EPA described the CD-ROM compendium of resources for small systems called "Safe Drinking Water Tools for Public Water Systems." Ms. Moller noted that the CD-ROM is also intended for technical assistance providers. The CD is designed for those without Web access to find EPA's most popular EPA publications without having to use EPA's Web site. The tool is interactive (designed to look like a Web site)

and allows searches by keyword and by category.

- The CD contains links to 400 documents, 85 percent of them published by EPA. Other documents were published by Small Systems' Technical Assistance Centers (TACs).
- Documents in the search results are listed with symbols that explain their popularity and type. Documents listed with a star are in the top 100 requested EPA drinking water documents. Those with the EPA logo and an apple are more informal tools and publications.
- Most of the documents in the compendium are pdf files, although there are some Excel and executable files.
- The compendium allows searches by one of eight main categories, including capacity development, technical assistance, PWS 101, rules and regulations, training tools, water security, source water and underground injection control, and Web guide.
- The compendium will be updated on the Web; an index will be available.
- EPA is distributing 3,000 copies of the first version of the compendium CD, accompanied by a postcard requesting feedback from reviewers. The distribution list includes all who were involved in reviewing documents during the compilation, along with states. Each member of the Council will also receive a CD. Others may directly request a CD from the National Service Center for Environmental Publications.

Dr. Buchanan asked how EPA will track who gets the CD and how useful they find it.

Ms. Moller answered that the CD will be distributed with a postcard that will ask users for feedback.

Mr. Baker requested that the CD or Web site refers users to states for additional information regarding state-specific regulatory requirements. He also suggested that the CD include state contact information.

Ms. Moller responded that Mr. Baker's idea is a good one. She will work with ASDWA to have appropriate language and contacts included with the CD.

Ms. Surgeon asked whether the CD can be copied for wider distribution.

Ms. Moller noted that it is not legal for the CD to be reproduced because the Java applet software is copyrighted.

When asked about updating the CD, Ms. Moller said that EPA plans to produce an updated version each year. She also clarified that the CD cannot be sold. This is a free product made

available by EPA in response to NDWAC's request that EPA documents be made more readily available to water utilities.

Discussion with Michael Shapiro, Deputy Assistant Administrator for Water

Mr. Ramaley summarized the actions taken by NDWAC, including the charges for the lead public education working group, the performance indicators subgroup, and the water security working group. He also noted that a CDC employee now serves as a liaison to NDWAC.

Mike Shapiro told the Council that strategic planning for the water program and critical water infrastructure protection are high priority areas at which he directs significant attention. He said the WSWG report is critical for determining future steps and will be useful in defining them. Mr. Shapiro thanked NDWAC members for their help in defining measures and said that EPA will continue to focus on measures in the future. Mr. Shapiro said he was pleased NDWAC established a partnership with CDC. He said it was important that EPA and CDC identify creative ways to combine the two agencies' efforts in protecting public health.

Mr. Ramaley said the Council supported the development of "robust" indicators for public health outcomes over the long term. He emphasized that the development of these indicators would rely heavily on partnerships with other organizations. But, in a nod to reality, the NDWAC subgroup will try to develop some recommendations in 3 months.

Mr. Taylor said that there was support for development of indicators for specific outcomes, but that OMB wants EPA to develop "ultimate" outcomes. He urged EPA to resist the urge to develop such links over the short term. EPA needs to take the time to do the job right.

Mr. Shapiro acknowledged the difficulty of developing indicators. He went on to say that OMB recognizes the challenges EPA faces, but still wants EPA to work toward the ultimate goal. Identifying the ideal and implementing it are two different tasks. The former is much easier to accomplish in the next year. The latter may take many, many years. Still, EPA will have to do something in the short term, which may include depending on modeling outcomes. Long-term performance measures should not steer EPA's water program from year to year. There are real limitations, but if a proposal is not useful, then we should resist using it.

Mr. Ramaley noted that outcomes based on extrapolation could be harmful if they lead to loss of confidence in drinking water. On the other hand, indicators that are done correctly can be very positive. Performance indicators will be the primary topic of discussion for the next couple of meetings. Mr. Ramaley thanked Mr. Shapiro for the opportunity to discuss these issues with the Council.

Mr. Ramaley said that at its next meeting NDWAC intended to address infrastructure renewal and distribution system issues. He asked whether there were any other issues Mr. Shapiro wanted the Council to consider. Mr. Shapiro mentioned sustainable infrastructure, additional security issues, and upcoming regulations.

Ms. Beardsley asked whether EPA was thinking about performance indicators in terms of upcoming rules. **Mr. Ramaley** said that each rule should have explicit public health goals that the regulation is trying to achieve. In addition, the rule should identify how the progress toward these goals will be measured in the short term and the long term.

Mr. Shapiro answered that EPA does not currently analyze outcomes by rule. It determines how many people overall are served by water that meets the standards. For clean water requirements, EPA determines how many water bodies meet the requirements. However, the subgroup could still consider indicators on a per-rule basis.

Ms. Dougherty added that EPA divides the percentage of people getting drinking water that meets standards into two groups: one for rules that have been in effect for some time and one for new rules. Ms. Dougherty asked how EPA could integrate the risk assessment models, completed during the part of rule development phase, with public health outcomes.

Mr. Grunfelder reiterated that legislatures and governors want to see true performance measures. The Council and EPA need to think about how to establish performance measures during rule development.

Mr. Ramaley noted that discussion of performance indicators on a rule-by-rule basis could help with simultaneous compliance. He also said that there are some unintended consequences of drinking water regulations. He said that EPA should ask itself, "What are we trying to address, and what are other consequences of the regulation?"

Dr. Regunathan said that a World Health Organization committee recommended that minerals be added to desalinated water because they promote cardiovascular health. He asked if EPA had a perspective on this topic.

Ms. Dougherty responded that EPA is statutorily precluded from requiring the addition of anything to drinking water. EPA cannot regulate additives that provide health benefits, such as fluoride. EPA could, however, become involved if corrosion were an issue.

Wrap-Up

Mr. Ramaley reviewed the topics for discussion at the next NDWAC meeting, including sustainable infrastructure, distribution system issues and regulatory development, performance indicators, and additional security issues.

Dr. Head added that NACCHO was completing a project with George Washington University and AWWARF on the relationship between public health and water systems. She suggested asking someone involved in the project to speak at the next meeting.

Ms. Thorp thought the group should discuss or learn about the approach to standard setting in

other countries at the next meeting. She reminded the group that Ephraim King originally made this suggestion.

Mr. Florquist recommended the Council obtain input from John Young on this topic.

Mr. Grunfelder suggested finding out more about the Bonn II Conference. He suggested speaking with Paul Ryder and Andrew Spear (or someone else from the IWA).

Ms. Dougherty suggested putting off the discussion of standard setting until the spring 2006 meeting because most people in EPA's Standards and Risk Management Branch are busy with the Ground Water Rule, LT2, and Stage 2. She thought a discussion of standards for distribution systems might be manageable.

Mr. Ramaley agreed and said the Council might just ask for an update from EPA on distribution system issues.

Mr. Schwartz suggested capacity development for small systems as a subject for the meeting. He mentioned that Kansas recently created a product intended to help systems improve capacity. Mr. Schwartz said he would like to showcase this tool at the next meeting.

Mr. Ramaley recommended Los Angeles, CA for the location of the next meeting. The Los Angeles Water Authority is addressing interesting issues including desalinization and conservation. He indicated that these issues may be of interest to the Council members.

Mr. Grunfelder recommended Seattle, a very progressive yet older system dealing with corrosion, infrastructure issues, and building new plants.

Ms. Thorp recommended Santa Fe, and **Mr. Schwartz** suggested San Antonio.

The group informally voted on the locations; Los Angeles and Seattle were the top two choices.

Mr. Ramaley thanked the members for coming and adjourned the meeting.