United States
Environmental Protection Agency

Office of Ground Water & Drinking Water
June, 2002

National Drinking Water Advisory Council

Summary Meeting Notes

May 8 - 9, 2002

EPA EAST, Room 1133
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Prepared by Horsley & Witten, Inc.
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WEDNESDAY, MAY 8, 2002

I. Opening Remarks – Dr. David Spath/ Ms. Cynthia Dougherty/Mr. Ben Grumbles

Ms. Dougherty introduces Mr. Ben Grumbles from the EPA Office of Water.

Mr. Grumbles discusses the priority water resource issues with the Office of Water as follows:

- Drinking water security including vulnerability assessments and implementation of security enhancing initiatives with an emphasis on securing Congressional funding for these items;

- Implementation of the core programs under the Safe Drinking Water Act with particular regard to compliance and affordability;

- Water supply infrastructure improvements and the use of the state revolving fund to finance improvements; and

- And innovative thinking to find cost effective and equitable ways to achieve the widely-supported requirements, goals, and standards of both the Safe Drinking Water Act and the Clean Water Act. Examples include watershed-based approaches, water quality trading, market-based approaches to achieve water quality standards, and a reduction in the number of TMDL-driven impaired water bodies nationwide.

Comments/Responses to Questions:

Blanca Surgeon asked Mr. Grumble if he knew if Congress is giving priority to the issues dealing with integration of water quality and quantity programs, watershed-based approaches to water issues, and infrastructure affordability issues. He confirmed that these issues seemed to be at a high level of attention from Congress. It is cognizant of the need to maintain the protections that are afforded under the SDWA. The Office of Water is teaming with the Office of Research and Development to develop cost effective technologies for compliance with the Arsenic standard. There seems to be great interest in funding watershed initiatives.

- Mike Baker emphasized the importance of the consideration of groundwater in watershed analyses. Mr. Grumbles added that there is a concerted effort between the Office of Ground Water and Drinking Water, and the Office of Wetlands, Oceans and Watersheds to ensure that the federal government applies proper jurisdiction to ground water, recognizing there is a hydrologic connection between ground and surface waters within watersheds.

- Dr. Spath expressed the need for a funding mechanism parallel to SRF's in order to satisfy the rehabilitation needs of existing infrastructure, which are beyond current SRF budgets. Mr. Grumbles responded that Congressional support is very low for a water trust fund water and wastewater infrastructure. Cynthia Dougherty mentioned that SRF funds are currently being used for infrastructure needs such as pipe replacement. Dr. Spath brought up that given the capitalization of the SRF, the priority list approach puts infrastructure needs low on the list for funding consideration.

- Mr. Ramaley commented on the speed at which security features need to be implemented after September 11, and asked for clarification on EPA's implementation timeline. Ms. Dougherty responded that EPA is working quickly with the states to process the grant applications for the vulnerability assessments so that money can be allocated quickly to the individual systems. EPA is also sponsoring a conference in early June to promote communication between state water administrators and state public health and emergency response workers. The purpose is to improve communications planning and coordination between these entities.

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II. Status of Upcoming Regulations – Mr. Ephraim King

- Mr. King spoke of EPA's accomplishments and upcoming rules. The driving force behind these rules are the 1996 SDWA amendments, which deal with three major regulatory areas: 1) the completion of a priority contaminant list, 2) identification of new contaminants to be regulated using risk-based methods, and 3) review of existing standards.

- Congress has assigned EPA the task of identifying high-risk priority contaminants on which to spend its resources, instead of blindly applying its efforts and resources on all EPA listed contaminants.

- Mr. King listed some of the accomplishments achieved to date, including:
  1. A list of consumer confidence reports which provides the first round of microbial standards for large systems. This has improved filter performance standards.
  2. The Disinfection Byproduct I Rule which lowers peak levels of disinfection byproducts while maintaining existing levels of microbial protection.

- Mr. King outlined rules that are currently under development at EPA:
  1. The Radon Rule-making is in progress and should be released in late 2003.
  2. The Final Ground Water Rule is also in progress and will probably be released in mid-2003.
  3. LT2 and Stage 2 are the second stages of the Disinfection Byproduct Rule and will be proposed by the end of this year.
  4. The Distribution System Rule, coupled with the Total Coliform Rule, will be revised in the near future.
  5. The Candidate Contaminant List 1 (CCL1) and the Six-Year Review Process are currently both moving forward.
  6. The Candidate Contaminant List 2 (CCL2) is being enhanced by comments provided by the National Academy of Sciences and recommendations from NDWAC.

- Arsenic Rule work is ongoing through a $20 million research program within the Office of Water and the Office of Research and Development.

- Mr. King further described the details pertaining to the Arsenic Rule and requested feedback from the NDWAC members. The rule compliance deadline is January 2006. Implementation of EPA programs for States, Tribes, and EPA regions is currently ongoing. Small system affordability issues are being examined.

- Mr. King discussed the LT1 rule, which affects approximately 3,300 small systems in the US. It is a strategy to help strengthen filter performance to improve microbial protection to reduce *Cryptosporidium* levels. This is expected to be a very challenging rule to implement given the large number of small systems.

- Mr. King briefly discussed the Radon Rule, which is going to be developed based on the same recommendations developed for arsenic that were provided by the Science Advisory Board. The rule will also benefit from recommendations provided by the General Accounting Office regarding the presentation of the information collected, and should be released at the end of 2003.

- Mr. King spoke about the key issues related to ground water. EPA is close to developing a monitoring strategy that is balanced between viral and bacterial testing methods. The focus of the method will be to provide public health protection through monitoring of either all 174,000 ground water systems or a subset of these. Final rule will be released in spring of 2003.

- Mr. King asked that NDWAC members offer recommendations on Stage 2 of the Disinfection Byproduct and LT2 rules to complement the October 2000 Federal Advisory Committee recommendations.

- Mr. King mentioned that the UCMR (Unregulated Contaminant Monitoring Rule) helps EPA gather occurrence and concentration information for contaminants that appear on the CCL list. EPA is currently reviewing the sampling and reporting information to confirm that the quality of the occurrence data is good.

- Currently, EPA has 59 existing contaminants with "State of Science" documents that are in final review. Data gaps are being identified and different private sector entities such as the American Water Works Association, American Waterworks Service Company, and the World Health Organization are being identified to perform research to fill these gaps.

- Mr. King mentioned that EPA has reached preliminary closure on over 60 contaminant assessments as part of CCL1. The specific list of chemicals will be released once the Federal Register Notice has been finalized. This is expected to occur in late May or June of 2002.

- The six-year review protocol has been published and presented in a Federal Register Notice for public comment. A rule-making schedule will be finalized in August 2002. Any NDWAC recommendations would be appreciated.

- Research and data collectors to support sound public health decisions in the future is ongoing. Any NDWAC recommendations that might help the overall coordination of research in this country would be appreciated.

- Mr. King concluded with a description of the trends impacting the development of drinking water regulations. These pertained to small system issues, the development of CCL2, drinking water and source water quality program linkages, infrastructure issues, and the effectiveness of EPA's rule implementation strategies.

Response to Questions and Comments:

- Mr. Griffiths asked for insight into the influence of watershed approaches on all the rules currently being developed by EPA. Mr. King responded by explaining that one example of the influence of the watershed approach can be seen in LT2, where lead reduction requirements are driven by watershed protection tools. Similarly, LT2 monitoring for microbial indicators can be expanded into stream segments to improve source water and give treatment relief to drinking water suppliers. Ms. Dougherty added that EPA is working hard to determine the intersections between the SDWA and the CWA to develop a better understanding of how to set proprieties.

- Mr. Ramaley complemented Mr. King for his comments on implementation. Many of the new rules that are taking effect in the next two years including filter profiling, disinfectant profiling, IDSE's, and others are more complicated than the usual protocols that utilities are used to dealing with. Regulators must oversee the implementation process, and make sense of the rules being implemented so that the utility owners aren't overwhelmed and forced to close their businesses. Mr. King informed Mr. Ramaley and others that he is working very closely with Bill Diamond's Implementation Division on developing training materials, and they are sending EPA staff into the field to work with co-regulators in the states. He is also working with the National Rural Water Association and the American Waterworks Association to see if they can help spread guidance and training information. Mr. King asked that if any NDWAC members were hearing any frustrations regarding rule implementation in the states, that they inform Cynthia Dougherty or Bill Diamond to ensure that EPA addresses these issues as soon as possible.

- Dr. Spath commented on Mr. King's discussion of the Radon Rule. He is concerned that the rule ascribes a high level of protection to smokers even though they are putting themselves at a greater risk because of their lifestyle choice. Dr.

Spath is concerned that this approach sets a precedent that may impact other rules in the future that should be developed to protect the general population, but instead may be designed to accomodate sensitive populations that have increased their risk through lifestyle choices. Mr. King responded by saying that the SDWA makes a commitment to protect sensitive sub-populations and so smokers must be considered in rule-making, irrespective of how their level of risk was augmented. Cynthia Dougherty mentioned that the sub-population of smokers that is catered to in rule-making includes "ever smokers", which includes those who once smoked and eventually altered their lifestyle to eliminate smoking. The "ever smoker" population is actually a significant portion of the U.S. population.

1st BREAK (Recess 11:05 a.m. to 11:20 a.m.)

Dr. Spath reinitiated the meeting after a brief recess with the introduction of Wynne Miller. He introduced her presentation pertaining to the Six-Year Review of existing standards prior to 1996.

III. Six-Year Review of Existing Regulations – Ms. Wynne Miller

- Ms. Miller's presentation involved a description of the Six-Year review process described in a Federal Register Notice published on April 17, 2002. The 1996 SDWA amendments (section 1412(b)(9)) require that EPA review and revise each national primary drinking water regulation and also requires that each revision provide greater public health protection. The six-year review process is performed by 20 to 25 staff members at OGWDW, in conjunction with the Office of Science and Technology, Office of General Counsel, OPPTS, ORD and various other offices and regional support.

- In 2000, a NDWAC workgroup provided recommendations on how EPA should perform the six-year review. NDWAC feedback provided the basis for several key elements in the review process.

- The first goal of the process was to develop a systematic protocol to review NPDWRs to filter through long list of regulations and narrow it down to include only those that need to be reviewed and revised.

- The second goal was to review the 69 regulations promulgated prior to 1996, which included 68 chemical rules and the Total Coliform Rule.

- The third goal was to publish EPA's decisions on the protocol for the study and a notice of intent in the Federal Register, which was performed on April 17, 2002.

- The fourth objective involves publication of a final list of "revised / not revised" decisions in August, 2002.

- The study looked at changes in RFD, cancer classifications, analytical methods and technologies and other advances in the field that might cause a need for reexamination of the MCLs or MCLGs.

- The study also included a review of all existing risk assessments and other analytical results in the scientific literature, and 13 million analytical results from about 41,000 public water systems related to the contaminants in question.

- Ms. Miller presented a flow chart depicting the protocol used in the six-year review process. This sheet was distributed to all meeting attendees.

- Using this process to filter through the 69 NPDWRs, EPA determined that 36 of them were already currently undergoing review, 17 were not appropriate for review, 12 were in the little or no health gain category, three contained data gaps that needed to be filled before a decision could be reached, and one, the Total Coliform Rule was in the revision category.

- Ms. Miller went on to discuss the rationale for certain decisions made by the agency regarding the review of particular MCLs, including:
  - Barium was not reviewed because a risk assessment had recently been performed by the Agency (1998).
  - Although Dalapon has not undergone a risk assessment, a literature search yielded no new information to justify a regulatory review.
  - Vinyl chloride has an MCL set above the MCLG. It is a known carcinogen, however the MCL was set based on the current limits of analytical feasibility. EPA found no indication that the analytical technology is changing; therefore, a review of the rule was not justified.
  - Chromium-6, a contaminant of concern in California, is thought to be carcinogenic if orally ingested. To date, there have not been any studies to support carcinogenaity by oral ingestion, but results from studies performed by the National Toxicology Program are three to five years out. For this reason, Chromium-6 has been placed in the data gap category in the review results, and it will be re-examined at a later date.
  - The Total Coliform Rule is currently being reviewed and revised by EPA. Many stakeholders have provided extensive comments on how to modify this rule in order to reduce the burden of monitoring while maintaining public health, and to substitute fecal coliform in lieu of *E.coli* as the measure for fecal contamination. EPA feels it is appropriate to modify the TCR and will initiate the stakeholder process to begin revision of the current regulation.

- The 60-day review period for the FR notice dated April 17, 2002, will end on June 17. At that time, EPA will address public comments and will work with the Science Advisory Board to verify the integrity of their review protocol before publishing its final decision.

Dr. Spath opened the floor to question pertaining to Ms. Miller's presentation of the Six-Year Review.

Response to Questions and Comments:

- Mr. Ramaley asked for clarification on how the decision made to revise the TCR followed the protocol described in Ms. Miller's flow sheet. She explained that the flow sheet, or review protocol was designed to deal with chemical contaminants and that the coliform rule doesn't exactly fit the model.

- Mr. McLane offered a comment regarding the designation of MCLGs of zero to all possible or probable carcinogens to ensure safety. He used an example of a chemical named glyphosate, which is found in the pesticide product Roundup. He believes that MCLGs of zero should be set for any contaminant that is believed to demonstrate any developmental effects or carcinogenicity. Ms. Schoney added that EPA considers how the contaminant might produce a health effect and how it behaves when they are setting limits. They establish "modes of action" to inform their decisions on preliminary MCLGs. For developmental effects, low-dose extrapolation and thresholds are used to set limits.

- Blanca Surgeon asked if contaminants undergoing current assessment could be candidates for future assessments in the next round of reviews. Ms. Schoney replied that these could be re-reviewed and, in fact, if there is compelling evidence to suggest that a more rapid review is needed, then this could be performed sooner than the six-year review process schedule.

- Ms. Niedel raised a concern that the review process looks at particular chemicals, as opposed to families of chemicals. She provided an example of atrazine, which is on the review list, while triazines are not. Mr. King clarified that the review process only looks at existing regulations while the CCL process would look at degradation products more as part of its review. Dr. Griffiths echoed Ms. Niedel's concern by saying that EPA should shift its focus from a contaminant-by-contaminant view of regulating, to a method of regulating based on chemical classes of compounds. He feels that this would be a much more efficient method for the Agency to use in terms of public health protection.

- Ms. Niedel asked if EPA's risk assessments extend beyond research done in the U.S. Ms. Schoney simply responded "yes".

- Dr. Spath asked about the practicality of PQLs when using analytical methods for developing MCLs. He mentioned that it is difficult to acquire new information on chemicals that have established PQLs because there is no reason for laboratories to try to test any lower than the Agency requires them to. Mr. King explained that their review method assumed that the analytical method could be improved for a certain chemical, and estimated the impacted population resulting from exposure at the assumed level. He then went on to confirm that the CCL2 process will be

dealing with families of chemicals such as the triazines, and not just individual chemicals, such as atrazine.

Dr. Spath mentioned to the audience that there would be a 30-minute public comment period at the end of the day, and that any non-members in attendance should sign up on the sheet located at the door outside the conference room. Mr. King introduced the Associate Branch Chief, Ms. Ann Cordington, who presented the CCL1 Background information.

IV. CCL1 Background – Ms. Ann Cordington

- Ms. Cordington, Associate Branch Chief in the Targeting and Analysis Branch, presented a background discussion about CCL1 and introduced the basis for Tom Carpenter's discussion, which took place in the afternoon session.

- SDWA requires that EPA publish a contaminant candidate list every 5 years. The first list was published in March of 1998. The second list is therefore due in February of 2003. The list consists of contaminants that are known or anticipated to occur in public water supplies, which may be regulated under the statute.

- The statute also requires that EPA make determinations on a 5 year cycle for at least 5 contaminants in that cycle. The first determinantions were due in August 2001, but have yet to be released as a result of delays. The second round of determinations are due in August 2006.

- With the help of NDWAC, EPA developed criteria for classifying and identifying chemical contaminants. The final list included 50 chemical and 10 microbiological contaminants, 10 of which are included in the first CCL.

- External experts were asked to help select which contaminants should be included on the list. Public health significance, occurrence in source water, known waterborne transmission, and adequacy of analytical methods were all criteria in the selection process. Different processes were used to classify microbes and chemicals.

- If data gaps exist for any of the listed chemicals, they are placed on a research track aimed at filling those gaps so that determinations can be made.

- The goal is to issue the FR notice in May 2002 and solicit comments over a 60-day period. Comments will be incorporated and the final product will be published in Fall 2002.

- NRC was asked to provide advice on future CCL processes. It issued three reports that identify lessons learned from CCL1 and steps for developing future CCLs.

- Some of NRC's suggestions were as follows:

- Microbes and chemicals should be evaluated under the same process.
- The universe from which information is collected should be expanded beyond EPA lists and research.
- Dismissal of certain chemical groups such as endocrine disruptors and pesticides should not have occurred, even though other EPA offices are studying them.
- The project time constraints and budgetary concerns forced EPA to have to quickly reduce the contaminant list from 391 down to 60. NRC suggested that EPA be more broad in the next cycle so that its evaluation can capture more of the contaminants of concern.
- The next cycle should allow for more public comment and participation.
- NRC argued that EPA's process needed to be more transparent to avoid public confusion.

- Ms. Cordington ended her presentation by noting that the next CCL will abide by all of these comments and suggestions. Most importantly, it will include a larger universe of chemicals and will use a more systematic and transparent evaluation process.

Response to Questions and Comments:

- Mr. Ken Merry requested clarification on why microbiological and chemical contaminants might or might not be treated differently in this process. Intuitively, he believes that it is appropriate to treat them differently. Ms. Cordington explained that the processes for dealing with both will always be different; health significance and analytical methods for the microbes, and occurrence and health effects for the chemicals. However, in a transparent process, the principles behind the classification process should be the same. She mentioned that this would be explained further in Tom Carpenter's discussion of the "Neural Network Process".

- Ms. Davis requested copies of the three NRC reports. Dr. Spath asked that all NDWAC members receive copies of all the reports.

- Dr. Griffiths further reinforced the fact that overarching evaluation criteria need to be developed to deal with microbes and chemical contaminants, and he mentioned that he was interested to hear that Mr. Carpenter's afternoon discussion would address this subject.

- Dr. Spath asked if EPA was satisfied with the effort it put forth in the CCL1 process. He mentioned that he found it to be very transparent and open to comment. Cynthia Dougherty explained that under the time constraints of the first CCL, the process developed was quite good; however, it could use improvement. Mr. King further added that in a scientific process such as this one, it is important for the experts doing the work to properly document their thought process so that the procedure is transparent and replicable.

- Ms. Neidel asked why perchlorate was not on the CCL list. Mr. King mentioned that they are collecting information on perchlorate and that a final risk assessment would be completed some time this fall. This information will then be used to make an off-cycle determination. He reiterated that any compelling public health risk authorizes and warrants a commitment to move forward off-cycle in an expeditious manner to make a determination.

- Ms. Cyndi Roper mentioned metolachlor as another contaminant that did not appear on the CCL1 list. Mr. King informed her that this compound might be eligible for an off-cycle determination similar to perchlorate, or it might make the CCL2 list. Ms. Roper also mentioned MAC, *microbacterium aveum* complex, which is not on the CCL list. Mr. King and his staff remarked that they have very little information on this just yet, but that they believed it is currently being studied in the Office of Research and Development.

Both Mr. King and Dr. Spath congratulated EPA staff and the council members on the level of effort they put forth on the issues presented in the morning session. The meeting attendees adjourned to lunch at 11:52 a.m.

V. Developing Future CCLs – Mr. Tom Carpenter

- NDWAC input will be requested on developing the next CCL. The CCL team is working to develop a CCL2 list, support regulatory determinations, and continue data collection on research and occurrence. The statutory requirements for developing the CCL have not changed.

- NRC and NAS developed three documents during CCL1. The first covered priority setting, and included what contaminants to research, how to conduct the research, and how to move forward on regulatory determinations. The second dealt with emerging contaminants and pathogens, and the third contained strategies for CCL2.

- NAS urges a classification approach to CCL2, looking at patterns using the neural network as a pattern recognition tool. There are three steps to the process: developing a universe of potential contaminants from 30 categories recommended by NRC, gathering data and applying screening criteria to develop a preliminary list of approximately 1,000 substances, and then developing a final CCL. Considerable expert judgment will need to be applied in all three steps.

- The new classification approach is being calibrated and validated using the existing NPDWR contaminants as training sets.

- NRC also recommends new molecular and genetic methods to identify emerging microbial contaminants. Virulence Factor Activity Relationships (VFARs) are being developed to help make use of new data. Similar attributes for looking at microbials will be developed relying on new technologies, so that eventually the

CCL process for new micobials will parallel the process for new chemicals. Interim products will need to be developed as proof of the VFAR concept.

- A variety of virulence indicators need to be studied and developed before VFAR can be fully utilized. Gene expression is a fundamental component to be considered. Fortunately, analytical capabilities are improving. Development of the CCL is entering the realm of environmental microbiology. Interagency participation will be critical, in order to identify and coordinate the range of research needs.

- A phased approach to implementing the NRC recommendations will be used. Literature reviews and data collection are underway. Over 115 databases have been researched. The use of training sets will be vital to validating the classification approach.

- A number of issues exist related to the method of developing prioritization. These include limited NRC resources, the inter-relationship of exposure and toxicity, and the identification and use of data sources. A process that can handle a lot of chemicals needs to be developed. The number of contaminants that could be considered for the next CCL is in the range of 100,000.

- The screening process to move from the universe of potential contaminants to the CCL will use an approach that looks at the intersection of the following data for each contaminant: occurs in drinking water, potential to occur in drinking water, has adverse health effects, has the potential for adverse health effects. A chemical or microorganism that does not have occurrence data cannot be ruled out from consideration. Expert advice is needed on the process, not so much the contaminants themselves.

- To move from the PCCL to the CCL, occurrence and health effects will be examined. Occurrence considers prevalence, magnitude, persistence and mobility. Health effects considers potency and severity. This point in the process sets the stage for pattern recognition.

- VFARs are a new and innovative approach to genomics, or how organisms are genetically mapped out. This technology should provide new indicators of the virulence of potential pathogens that occur in the environment. Pilot and prototype projects will be identified that involve literature reviews, development of model systems to test virulence of pathogens, development of interagency agreements, and development of analytical methods for VFAR indicators.

- Mr. Carpenter requested that NDWAC assist EPA in developing methodologies to be used for CCL2 and beyond, by creating a workgroup with two subgroups. One group would deal with microorganisms and pathogens, and the other with chemicals. The workgroups should examine the matter of parallel paths in developing CCLs within these two categories.

- The draft charge to the NDWAC is: discuss, evaluate and provide advice on methodologies, activities, and analyses needed to implement the NRC's recommendations on an expanded approach for the CCL listing process. This may include advice on:
  - An overall implementation strategy,
  - Classification attributes and criteria,
  - Pilot projects to validate new classification approaches,
  - Proof of concept activities to support VFAR analysis,
  - Risk communication issues, and
  - Additional issues not addressed in the NRC report.

- Mr. Carpenter requested that the workgroup convene by mid-summer 2002. He referred to a Gantt chart in the handouts that contained schedules, milestones and deliverables.

Response to Questions:

- Mr. Young asked if the resource needs to perform the screening had been estimated. Mr. King responded that it is critical to demonstrate that all the potential contaminants have been considered in a reasonable way, and that this is a very ambitious task. The group involved in the work may conclude there are not enough resources to do the job. Mr. Griffiths added that the 100,000 chemicals will be screened using common sense and transparent criteria, and that the cost of that activity will be low. The pattern recognition approach will be applied to a much smaller number of potential contaminants. At that point the neural network would be engaged to facilitate the screening process.

- Mr. Young reiterated that his concern focuses on the 100 or 200 contaminants on the final list and the resources to fully evaluate them. Mr. Griffiths responded that the neural network will provide a ranked list of final candidates. Ms. Dougherty added that priorities will have to be set for whatever list is developed and that looking at classes of contaminants might allow for dollars to go further.

- Ms. Ramirez-Toro inquired about the capability of the approach to microbial contaminants. Mr. Griffiths underscored the importance of moving technology ahead so that organisms like *Cryptosporidium*, that cannot be cultured, can be detected by examining other aspects of its biology, such as genetics. He noted that the leading causes of waterborne outbreaks in the US are protozoa and viruses, and that this fact is responsible for the emphasis on genetic elements.

- Ms. Ramirez-Toro asked how organisms that are unknown pathogens, like *Legionella*, will be factored into consideration. The response was that if cousins of known pathogens surface, they will be examined closely. The fact that some pathogens share the same genes is recognized.

- Ms. Ramirez-Toro also asked how far the CCL2 list can proceed given the state of science. Not terribly far, according to Mr. Griffiths. Mr. King noted that the CCL2 is due in February 03, and that is an obvious constraint in terms of what can be accomplished in that time. Regulatory determinations must be completed by August 6. These are competing deadlines, and must be balanced. However, by August 4 or August 5 there may be additional contaminants that may be ready for regulatory determinations.

- Mr. Ramalay asked if the group considered any bias that might have been introduced by concluding that the existing NPDWR contaminants are the best data set available. Mr. Carpenter replied that NRC looked at biases and sensitivity and methods of developing the training sets using correct and appropriate data.

- Ms. Davis remarked that items on the "generally regarded as safe" list have not been through this sort of screening and may be more toxic than some of the substances that are of concern in water. Ms. Roper expressed concern about producer responsibility in terms of developing occurrence data and what is already in the environment, and also performing research on chemicals that are being introduced into the environment. She also asked if new chemicals now in production are being analyzed for their potential impact on public health. Mr. King noted that occurrence data is a significant potential gap. In terms of emerging chemicals, OPPTS and other EPA offices review many new compounds.

- Ms. Roper expressed offense that taxpayers, not manufacturers, are in the position of funding research on the health effects of potential contaminants in drinking water, both those that are known to occur and that are emerging. She noted that there is responsibility on the part of producers of contaminants to help fund the research. Dr. Spath wondered aloud how decisions can be made on unregulated contaminants in the absence of data or if only limited data are available, if producers are not required to do testing under an unregulated contaminant rule. Prioritizing monitoring based on factors such as volume and location of contaminants will have to happen. Ms. Dougherty pointed out that under the unregulated contaminants rules, no one party must monitor for more than 25 contaminants at a time, but that those contaminants can change every three years.

- Ms. Surgeon asked where the process stood in terms of meeting the February 2003 deadline. Mr. King responded that the greater deadline is the regulatory determination deadline of August 2006, and that one approach in the face of limited resources might be to develop a modest CCL2 list by February 2003 and devote resources to pinpointing high risk contaminants over the following two to three years. But they would like NDWAC's advice. Ms. Surgeon noted that exploring the entire contaminant universe all at once is too much and she would support a more limited approach.

- Mr. McLane asked if the same process that is used to develop water quality criteria under the Clean Water Act could be used for the Safe Drinking Water Act. Mr. King replied that NRC was asked which of the criteria used for drinking water could also be applied to beach and recreational uses. The committee felt the same criteria could be used.

- Ms. Davis asked how a transparent neural network can address complex issues (e.g., the fact that within a classification like the halogenated methanes in disinfection byproducts, there are enormous differences in toxicological properties). Mr. Griffiths responded that the model sorts out the relative severity of attributes. The application of the neural network is not to make final decisions but to identify compounds that require future research.

- Mr. Ramalay voiced a concern that EPA not abandon the existing process of identifying new contaminants, but rather run the new process in parallel with the existing one. Mr. King responded that the only option is involving the NDWAC in a process to determine the strengths and weaknesses of the neural network approach and help to decide if it is an appropriate tool. Even with the use of the model, expert judgment must be applied in the end, and the decisions of EPA must be transparent and stakeholder interests must be well served.

- Mr. Duque asked how many people and dollars are expected to be needed. Mr. King responded that a budget has not been set, but that requirements will be based on the request to NDWAC for development and involvement of two groups of 15 to 20 people each. The first group will be asked to examine microbiological issues and make a recommendation on the use of VFARs as well as alternative and parallel paths. The second group would address the chemical issues in an effort to narrow the 100,000 chemicals down to 1,000 or less, using such information as pathogenicity, persistence, manufacturing volumes, and occurrence.

- Ms. Dougherty explained how NDWAC work groups function.

- Mr. McLane noted that the use of coliform bacteria as an indicator organism in the development of TMDLs may be off target since coliform bacteria are largely benign. Perhaps a known pathogen should be used as the indicator organism in surface water that also serve as a drinking water source. Mr. King replied that EPA is working with NAS in development of other indicator organisms, and will keep the group informed of progress.

- Mr. Young asked a question about the process and the timeline for the work groups. Mr. King responded that the state of progress would really be unknown until after the three meetings of the work groups, but that hopefully by the end of three meetings pilot proof of concept projects would be complete.

- Dr. Spath noted there were two decisions before the NDWAC, one concerning the work groups, and the other concerning the recommendation on when to start using the new methodology. He advised against using the new process for CCL2, but instead target it for CCL3. Mr. King agreed that the process cannot be used for CCL2, but said that he would like to be able to demonstrate the degree of progress with the new approach by February 3, so that the public can be informed of developments.

- Mr. Ramalay clarified that the new process may be used as a means of verifying CCL2 or at least to demonstrate how it might be used in the future. Mr. King said that subclasses will used to test different aspects of the recommendations. Ms. Dougherty said that the important thing is to move aggressively in sorting out how to use the new approach so that it will in fact be available for use for CCL3. Dr. Spath noted that one of the tasks of the work group is to give EPA feedback on how to use the approach initially so that it is understood by and acceptable to the public.

- Dr. Spath indicated a need for a motion on creation of a work group and it was so moved by Mr. Ramalay, seconded by Mr. Schwartz. Discussion included a clarification by Mr. Merry that there would be one working group to start with, which would later split into the two groups discussed by Mr. King. The motion passed unanimously. Times and locations of the meetings was discussed, as well as costs and budget limitations.

- Four NDWAC members were appointed to the CCL/Neural Network work group by Dr. Spath: Jeff Griffiths, Graciela Ramirez-Toro, Brian Ramaley and Ken Merry.

- Dr. Spath asked if there were any public participation comments. There being none, the Council moved on the next agenda item.

VI. Arsenic Implementation – Mr. Ron Bergman

- Mr. Bergman reviewed the Arsenic Rule and mentioned that there are 4,100 systems above the 10 ppb limit, most between 10 and 50 ppb. 1,100 of these are non-community non-transient water supplies. Most of the systems are small, so the challenge is how to get those systems into compliance in a reasonable time frame. The Administrator has committed to making full use of SDWA flexibility provisions to help systems comply.

- The rule becomes enforceable June 23, 2006. The MCLG is 0. The rule will also apply to non-transient non-community water supplies in 2006.

- For systems that do not exceed the MCL, surface water systems must be tested annually and ground water systems must be tested every three years.

- EPA's implementation strategy included using SDWA tools to assist with compliance, including exemptions and point of use treatment, targeting financial assistance such as SRF monies for small systems, providing technical assistance and training, and enhancement of system sustainability. About 1,000 of the systems that are out of compliance serve less than 100 people and the Arsenic Rule will be their first experience with any kind of treatment.

- Getting systems into compliance by 2006 will be a real challenge. To achieve this, 1,000 systems per year will have to go through design time, piloting and construction.

- The goal of exemptions is to get systems on a compliance schedule, and provide time to obtain financial assistance, restructure, plan, construct and develop treatment approaches. States can take a pro-active approach to compliance, and stagger systems to avoid an enforcement bottleneck. Another option is the reactive approach of issuing violation orders after the 2006 deadline.

- Systems can get an exemption of up to three years. Small systems can get as many as three two-year exemptions beyond the first, for a total of 9 years beyond 2006, or 14 years from the original 2001 SDWA compliance date. However, in order to receive an exemption, a system must be on a compliance schedule and meet interim steps on the path to compliance.

- There are four criteria for granting an exemption to the compliance deadline: compelling factors like economic hardship, asserting that the exemption will not result in an unreasonable risk to health, the system is unable to make management or structural changes, or the system began operating by February 2002, the effective date of the rule. The two leading reasons that exemptions have not been widely used are the transaction costs of obtaining an exemption, and requirement for a public hearing in the state for each exemption request. This latter issue could be addressed by bundling the hearings.

- The other key issue that has come up with regard to implementation of the Arsenic Rule is defining unreasonable risk to human health. Mr. Bergman explained an approach to this determination that has been developed by EPA staff and asked for council feedback. The approach involves calculating exposure times that are equivalent to 200 parts per billion years before treatment is required to begin. Each system would be classified according to a linear formula of exemption times based on the levels of arsenic in the water supply.

Council Discussion

- Ms. Neidel expressed concern that people have been exposed to chronic levels of arsenic that have been determined to pose a significant risk to health, and the time period for allowed continued exposure should be as short as possible. She

mentioned that delivery of bottled water should be considered for those systems with high levels of arsenic.

- Mr. Bergman noted that mitigation steps such as providing bottled water can be a part of an exemption. He reiterated that the purpose of the exemption is to buy time for systems to properly address the problem. The real problem is the system that has not addressed the problem at all.

- Mr. Griffith noted the value of distributing risk but expressed discomfort with the time frame which could allow some systems to go 14 years past 2001 delivering water with unsafe levels of arsenic. Ms. Dougherty indicated that exemptions are not just handed out; the state has to judge whether or not all four exemption criteria have been met.

- Mr. Surgeon remarked that there are water suppliers that will take issue with an accelerated time frame, noting that people in the community have consumed water with these levels of arsenic for decades. He also raised the issue of the injustice inherent in whether people can afford to buy their own bottled water or not. People of lesser means may be the ones who suffer the greatest exposure. Another cost issue is that if a public bottled water program is made available, it will be used even by people who can afford to buy bottled water on their own, thus elevating the cost.

- Mr. McLane offered that EPA's proposal is well thought out. He asked the Council to consider the advantages and disadvantages of the enforcement approach vs. the exemption approach. The Council discussed the advantages of states initiating an exemption process now as opposed to in five years. California is already offering SRF loans to systems that are known to be unable to comply by 2006. Another consideration is that after 2006, systems that are out of compliance will have to notify consumers on a continuous basis until compliance has been achieved. The utilities are probably not thrilled about this prospect. Compliance can be achieved either through exemptions or compliance orders; it's simply a matter of when the clock starts. Dr. Spath stressed the pitfalls of the exemption approach in that utilities may buy time but not move forward on implementing solutions.

- Two members of the Council noted that their states and others have steered clear of exemptions because of the need to define unreasonable risks to health, but that the alternative of following the administrative approach results in issuing notices of violation, which upsets people and suppliers and is reactive rather than proactive.

- Ms. Roper raised the issue of systems being able to afford to implement the arsenic standard. She asked what kind of dollar figure might be necessary. She felt the Council should make a statement about the funds needed to provide total protection, not levels of protection, and then work together to figure out where the

funds would come from to implement the standard. Mr. Merry offered that there may be situations where small systems could be linked to larger systems to lower arsenic levels and buy time for compliance. He noted the problems that small systems are likely to face in operation and maintenance of arsenic treatment systems.

- Mr. Young stated that the determination of unreasonable risk to health needed to be based on science and not convenience, and if it is not supported by science it was doomed to fail. Ms. Dougherty expressed that with this approach the exemption tool can never be used because it implies that any number above the standard constitutes an unreasonable risk to health.

- Mr. Surgeon echoed the idea of larger systems assimilating smaller ones in order to reduce arsenic levels in delivered water. In terms of cost, he mentioned that the City of Albuquerque needs $30 million just to start to comply.

- Mr. Ramalay noted that Congress's intent with the exemption provision was to provide flexibility to system in coming into compliance. He supports EPA putting an upper limit on the definition of URTH, and giving that to the states to use as guidance so that the exemption process can be utilized more easily.

- Mr. Schwartz moved that the Council endorse EPA's guidelines for URTH. Seconded by Ms. Dougherty.

- Ms. Roper said she felt the guidelines were written to the regulatory agencies and does not take into consideration the impact on consumers. She reiterated her desire for the Council to make a statement about necessary resources to accomplish the goals of the standard. Mr. Griffiths also stated his discomfort with the approach and felt it was tantamount to codifying the maximum possible level without any improvement over time. The most slack should be cut for the systems that are closest to 10, if there is any slack to be cut. He felt the real URTH level was in fact 10, and that implementation of the standard needs to move ahead aggressively.

- Mr. Merry stated that he would be more comfortable looking at a draft guidance document describing the various options, rather than the presentation. Mr. Diamond responded that there actually is draft guidance and that it was available to NDWAC members. He noted that the EPA staff proposal for an approach to URTH is well in the middle range of what is acceptable, and is not an outlier on an extreme level.

- Mr. Young asked if the science was described somewhere, and Mr. Diamond responded that all the debates have been soundly based in science. The outlier would be the part per billion-years represented by 40 ppb (the difference between the old and new standards) multiplied by 14 years. He noted that Congress allows

that once the science is determined, the issue of exemptions will be addressed in order to allow systems to come into compliance in a reasonable time frame.

- Dr. Spath called for a vote on whether the council endorsed the approach to URTH as presented. The Council voted IN FAVOR on an 8 to 6 vote.

- Ms. Neidel underscored the importance of public involvement on whether the exemption approach or the compliance approach is utilized. She felt it was important for consumers to be aware that meeting the new standards may involve a rate increase for them. She also expressed concern that few people will be involved in public meetings from one specific geographic area if the hearings are bundled.

- Turning to the Point of Use discussion, Mr. Bergman pointed out that is an allowable compliance option under SDWA. Point of use treatment can provide many of the benefits of centralized treatment. Units would be installed in homes. However, the compliance burden remains on the utilities. The issue at hand is access to homes in order to service devices. They will probably have to be maintained one to two times per year. Consumer education and participation will be critical.

- The Council discussed the issue of access to homes. Mr. Bergman pointed out the scale of the systems is small, so the number of homes to be services will also be small, on the order of 80 homes maximum. Using an outside contractor who visits homes on evenings and weekends when people are home may be necessary. Recalcitrants who do not cooperate could have their water shut off, but that would be expected to be a small number of people. To minimize the problem of recalcitrants, public education very early in the process and on a continual basis will be critical.

VII. Affordability Issues Update – Jeffrey Kempic

- Mr. Kempic reviewed the outline of the presentation and mentioned that the possibility of forming a NDWAC working group would be discussed. Nationally, the largest number of water supplies by type are the transient non-community water supplies, followed by community water supplies and then by non-transient non-community water supplies. It has been determined that the user group most sensitive to cost increases was households in community water systems, and so the affordability question has focused there.

- Surface water systems have an even distribution of small and large systems, and a fair amount of treatment is already in place for surface water sources. But ground water systems have fairly limited treatment in place as a rule. About 30,000 ground water systems serve 500 people or less.

- SDWA has a number of provisions for small systems to facilitate compliance with MCLs. These include compliance technologies, extensions for exemptions, capacity development, technical assistance, SRF loans to disadvantaged systems and variances.

- SDWA specifies three system size categories for technical assistance needs. The idea is to identify a technology for the systems, that will allow compliance with MCLs and that is affordable. Affordability is not considered for regulations where system variances are prohibited, such as meeting microbial standards.

- There are two technology tracks that small systems can pursue – compliance technology and variance technology. The two are mutually exclusive.

- The key steps in the variance procedure are that once EPA determines there are no affordable compliance technologies, EPA identifies affordable variance technologies. States decide on a system by system basis if a system can afford to comply through treatment, alternate sources, restructuring or consolidation. The state also determines if the terms of a variance provide adequate protection of public health. Small system variance are highly prescriptive in terms of how they function.

- In terms of how small system variance work under SDWA, there are no exemptions for systems granted a small system variance. Systems are paying less, but are getting less protection. Ms. Dougherty noted that the technologies themselves do not have to be identified by EPA if it has been identified that affordable technologies exist for every category.

- The components of the national level affordability criteria are:
    - Determination of the baseline (current annual water bills)
    - Affordability thresholds
    - Available expenditure margin (AEM)
    - Calculation of AEM for three system size categories

- Median Household Income (MHI) has been selected as a criterion for each size category. Data were taken from 1995 Community Water System Survey and 1990 Census. MHI was based on 1995 dollars for the Arsenic Rule. 1999 data will be used in developing affordability criteria. The current baseline annual expense for water is 0.7% of median household income in each size category. An affordability threshold of 2.5% has been selected. Available expenditure margins then fall in the dollar range of $474 to $559 per household.

- Affordable compliance technologies have been found for all MCLs that have been set to date. However, all technologies are not affordable for all size categories. This issue arose last summer. Some of the conclusions of the August 2001 NDWAC Arsenic Cost Working Group were that :
    - EPA had produced a credible estimate of costs

- Cost estimates could be improved in the future
- A NDWAC working group should examine how affordability of regulations is determined.

- Key topics for review on small system affordability include evaluation of
  - Alternatives to use of MHI in calculations
  - Alternatives to the 2.5% threshold
  - Development of separate criteria depending on primary source type
  - Impact of financial assistance on affordability
  - Development of criteria on a regional basis
  - Development of methods to examine long-term protection of public health over life of technology used

- SAB will be consulted on economic issues that relate to the national level affordability criteria. It will be asked to evaluate the basic approach of comparing projected treatment costs against the difference between the affordability threshold and the baseline. It will also be asked to identify options for the affordability threshold and to recommend the bases for the selection of the affordability threshold.

- NDWAC will be developing a white paper that will address the key issues and new analyses being performed for review. In addition to evaluating nation-level affordability criteria options, it will provide input on funding mechanisms and other legislation action to provide time extensions for small systems and assure maximum compliance

- The NDWAC working group on affordability criteria will be meeting in July 2002 after the SAB meeting. It is important the at the work group represent an array of backgrounds and perspectives. The next steps are to identify NDWAC participants, identify technical expert participants, develop a schedule for the review process and review the white paper on affordability.

- Dr. Spath asked for the target date for a product from the work groups and Mr. Kempic replied that would like to see something come back to the NDWAC by late fall. Ms. Dougherty said EPA would like to come to some conclusions by the end of the year.

- Mr. Merry inquired about available expenditure margin in terms of other contaminants that must be addressed. Mr. Kempic indicated that this area is one of the subjects for review, and noted that the margin would change over time as more systems install treatment and their baseline costs go up.

- Ms. Neidel reiterated the need to discuss regionalization and consolidation in terms of small system compliance. Mr. Kempic pointed out that these considerations must be part of the state assessment of variance requests. Dr.

Spath noted that the cost working group had considered this matter, and that the SRF is another important check point where this concern must be addressed.

- More discussion ensued on the matter of cumulative affordability in light of the need for compliance with a number of existing and new MCLs. Mr. Kempic reminded the group that the matter of financial assistance to systems has yet to be explored. Mr. Griffiths mentioned that some communities might decide to install generic treatment systems that would address an entire spectrum of chemical and biological contaminants. Dr. Spath cautioned that community water supply systems might not have the technical capacity to operate such systems even if they come up with the funding to construct them.

- Ms. Ray pointed out that it has been difficult to answer water suppliers as to what kind of technology needs to be installed in order to meet regulations over the next 20 years. Communities that are making large investments in treatment technology want to know.

- There was further discussion on the appropriateness of the 2.5% MHI affordability threshold, whether proper attention was being given to the matter of regionalization and consolidation, and if the working group would address the concerns of the rural water purveyors, understanding that in small water systems, regionalization is a component of affordability.

- A MOTION was offered by Mr. Schwartz to convene a working group to address affordability criteria. SECONDED by Ms. Neidel. The vote was unanimously IN FAVOR. Participants on the working group will be Bruce Florquist, John Young, Vicki Ray, Blanca Surgeon and Cyndi Roper.

- Ms. Neidel expressed a desire to see EPA canvass the states to determine the status of regionalization and consolidation and some financial figures associated with this activity. Dr. Spath suggested that ASDWA might be willing to do such a canvass. S. Neidel MOVED that EPA collect this information. SECONFDED by Ms. Roper. Voted unanimously IN FAVOR by the Council.

- The Council adjourned at 5:47, to be reconvened at 8 AM the following day.

THURSDAY, MAY 9, 2002

VIII. Review of Day 1

Dr. Spath opened the second day of meetings with a discussion of the two newly formed NDWAC workgroups that will advise EPA in the near future. These include a CCL workgroup comprised of Jeff Griffiths, Graciela Ramirez-Toro, Brian Ramaley and Ken Merry who will be meeting approximately three times over the course of this summer. The second workgoup will deal with the affordability issue and is comprised of Cyndi Roper, Blanca Surgeon, Bruce Florquist, Vicky Ray and John Young. The goal of this workgroup is to produce a report that will be voted on at the next meeting in November.

Dr. Spath introduced Ms. Veronica Blette, who discussed the infrastructure gap and legislative activity dealing with the state revolving fund.

XI. The Infrastructure Gap and Legislative Activity – Veronica Blette

- Ms. Blette updated the committee on the progress of EPA's gap analysis. A needs survey was released that concluded that funds totaling $151 billion are required to maintain, develop and restore infrastructure in the U.S.

- The purpose of the gap analysis was to quantify the difference between spending and needs over the next 20 years. A report was prepared and submitted for peer review. Comments from the peer review panel have been reviewed and addressed. In February of this year, the report was submitted to OMB for comment. Their comments are currently being addressed and the final report should be published later this year.

- EPA is not at liberty to discuss the results of the gap analysis until the study is released.

- The goal of this work is to develop sustainable systems in both the drinking water world, and eventually the wastewater treatment world. By operating systems as efficiently as possible, gaps may be avoided in the future.

- EPA has testified at many of the recent hearings dealing with infrastructure. Ms. Blette distributed an excerpt from testimony given by Ben Grumbles before the Senate Environment and Public Works Committee in February 2000.

- The consensus on this issue is that water needs to be brought up to a cost-based rate, while at the same time recognizing that there are affordability issues for some segments of the population that need to be addressed through cost structuring so that the disadvantaged community members can continue to afford safe drinking water.

- Some of the focuses or principles of the study are:
  - Promotion of smart water use;
  - Promotion of incentives for technology innovations to lower life-cycle costs;
  - Promotion of watershed-based decision making;
  - Promotion of state capacity and state support from the federal government, and
  - Management of on-site septic systems to diminish pollution from these sources.

- Ms. Blette distributed a list infrastructure-related bills that have been guided by the gap analysis study. Two important bills to note are those that would reauthorize the SRF programs. The first is the Water Investment Act of 2002, which is pending markup. The second is the 3930 reathorization of the Clean Water SRF, which is currently awaiting a floor vote.

- The drinking water SRF would reauthorize at a total of $15 billion from 2003 to 2007. This is less than the $20 billion authorized under the Clean Water SRF, but it is a significant increase.

- Ms. Blette highlighted the major difference between the bills and the most recent additions to both bills. She distributed outlined notes pertaining to both the Jeffords and Voinovich amendments to the NDWAC members.

- The administration is hoping to finalize the bills this year, and Ms. Blette is hoping that the differences between the Jeffords amendment and the Voinovich amendment can be resolved so that this can occur.

- Other issues that are delaying the progress of the bills are allotment issues, and the fact that drinking water SRFs can't be given if it won't bring you into compliance or if you don't have a compliance plan. The latter issue is being argued back and forth between environmental groups and industry associations.

Response to Questions and Comments:

- Ms. Roper commented that environmental groups are concerned with the way the drinking water SRF is funded. She explained that she was against funding future capacity with the anticipation of a 20-year lifetime because it exhausts funds that are earmarked for existing needs, compliance and concerns. Ms. Roper also asked for clarification on the study that relates to affordability. Ms. Blette explained that one of the amendments could have the National Academy of Science doing a study on rates and disadvantages.

- Ms. Surgeon asked how the amendments are incorporated into the bill. Ms. Blette explained that the amendments are actually a whole substitute for the Senate bill of 1961.

- Ms. Blette added that the 2003 needs survey is kicking off this fall, and will be completed in 2005. At that time, the allotments will have to change once again to reflect the results of the new needs survey.

- Dr. Spath asked for information on the emphasis placed on small systems in the needs survey. Mr. Travers, who is familiar with the needs survey, explained that expenditures are high because of the frequency of site visits. A comparative cost analysis has demonstrated that annual small system needs are not very variable from year to year and, so, money can be saved by reducing the frequency of the annual site visits. As well, the Ground Water Rule and Arsenic Rule will greatly affect small systems over the next 20 years. This will be considered in the new needs survey.

Council Discussion:
Coalbed Methane Extraction and SDWA – Initiated by Brad McClane

- Dr. Spath called upon Brad McLane to introduce the next topic of discussion to the Council. The issue he is concerned with pertains to oil and gas development and its regulation under the Safe Drinking Water Act. In particular, the issue of coalbed methane extraction is of interest to Mr. McLane. Mr. McLane explained that he has 3 reasons for bringing up this issue:
  - He is very interested in learning more on the subject because he is a concerned citizen.
  - He believes that the Council has a role to play in this issue that Congress is currently debating and EPA is presently studying.
  - He is concerned that Congress has passed an amendment to the Energy Bill that will suspend regulation of hydraulic fracturing under the SDWA.

- The amendment would force EPA to conduct a study of the impacts of all hydraulic fracturing practices on ground water (oil and gas). Mr. McLane explained that in Alabama, citizens complained of contamination of drinking water wells by hydraulic fracturing activities. This compelled the State to develop a program to regulate this practice. Mr. McLane feels that hydraulic fracturing should be regulated under Section 1425 or 1422 of the SDWA.

- Mike Baker, a council member and current president of GWPC raised a concern that hydraulic fracturing is a temporary injection of fluid to fracture a formation, and therefore should not be regulated under injection or underground disposal rules. His worry is that if all gas production wells are regulated under the UIC program, it could dilute the activities of the states in the protection of resources that are impacted by Class V and Class II activities.

- Mr. Baker is looking forward to seeing if the EPA study reports any potential for contamination of sources of drinking water by hydraulic fracturing of coalbed

methane wells. He feels strongly that Sections 1425 and 1422 of SDWA should be reserved for "true" injection practices, and not oil and gas production practices.

- Mr. Bill Diamond described the EPA study in detail. The study is comprised of 3 phases. EPA has been working on Phase 1 of the study for the past two years. The first phase is simply a data gathering phase where information is being collected that pertains to the coalbed locations, coalbed formation geology, fracturing practices, numbers of wells, contaminants in fracturing fluids, and other such existing information. The results of the study will be released shortly. If the study demonstrates a significant potential for contamination risk, then Phase 2 of the study will commence. The second phase would be a more detailed risk assessment to determine the extent of that risk. The third phase would be an evaluation of the management systems that are in place to regulate this practice (non federal and state programs).

- EPA collaborated with DOE, BLM, USGS, and state oil and gas regulatory agencies. Public hearing were held to allow local citizens and officials to contribute and exchange information as well. EPA also worked with the three major industry service companies (Halliburton, BJ Services, and Schlumberger) who do the bulk of the fracturing treatments in the U.S.

- The draft report was reviewed by a peer-review panel that included hydraulic fracturing experts, from industry, academia, federal government, and some state agencies. Their comments are being incorporated into the report. The hope is to have the final report out by this summer. Then the report will be subject to public review for a period before it is finalized and a determination is made on whether it is necessary to proceed with the second phase of the study.

- Mr. Diamond explained that the study has been an extensive effort for the EPA, considering the limited resources and funds of the UIC program.

- Ms. Dougherty added that EPA as a whole (not just the UIC program) is also actively looking at other issues related to coalbed methane extraction. One of the biggest issues is what happens to the produced water that is extracted from the wells during production. The Office of Water is dealing with this in Wyoming and Montana where this is a huge issue.

- Mr. Florquist, who is located in Wyoming, discussed the issue further. He explained that in the Powder River Basin, the produced water is in the 1,600 to 1,700 mg/L TDS range. This water is being extracted to promote gas production and then it is discharged to surface impoundments and streams. This is poor quality water, according to him. The other issue he touched on was the fact that the level of production in the Powder River Basin is drawing down ground water over thousands of acres, which impacts people's drinking water supplies. The third issue he described was the impact of the poor quality discharge water on fish and wildlife. The soil absorption ratio is also impacted by the water quality. Mr.

Florquist concluded that this is a multifaceted problem with potential long term impacts that need to be studied.

- Dr. Griffiths added that he felt it would be premature for EPA to get rid of any regulatory oversight of this practice in the future, considering what is known about the effects of injecting contaminants into groundwater and the effects observed on surface waters. For EPA to have a legitimate role in the regulation of this practice, they should avoid having their hands tied.

- Mr. Diamond explained that the bill has EPA doing an enormous study in a period of 24 months, including a complete rulemaking in six months. The study would cover all of hydraulic fracturing, and would not be limited to coalbed methane mining only. EPA believes that if the potential risk is minimal in shallow coalbed methane fracturing, then the risk would be reduced in deeper oil well fracturing.

- The study would be written in collaboration with DOE, DOI, GWPC and other organizations, and it would be reviewed by the National Academy of Sciences.

- Due to time constraints, Dr. Spath suggested that the discussion be terminated shortly.

- Ms. Roper suggested that this topic be slated for the agenda of the next NDWAC Meeting. She mentioned that she thought that the bill might include a moratorium on fracturing during the study period. She also expressed concern that EPA seems to be worried that there is no funding for the regulation of this practice, but it is important that sources of drinking water be protected from contamination and drawdown.

- Bill Diamond confirmed to Ms. Roper that there was, in fact, no moratorium on fracturing mentioned in the bill. Mr. Diamond assured the Council that they would receive copies of the draft report when it is released. He also clarified that hydraulic fracturing is not a completely unregulated practice. He explained that many oil and gas boards regulate this practice in almost all states.

Dr. Spath resumed the meeting after a short recess and introduced Janet Pawlukiewicz, who is the director of the Water Protection Task Force.

X. Water Infrastructure Protection Initiatives - Janet Pawlukiewicz, Gregg Grunefelder, and Chuck Job,

Water Infrastructure Protection Initiatives - Janet Pawlukiewicz

- Ms. Pawlukiewicz began by laying out the agenda of her presentation. She would begin with a brief overview of EPA task force activity. Greg Grunefelder (State of Washington and ASDWA) will give a similar overview of his agency's work. Mr. Grunefelder and Ms. Pawlukiewicz would then jointly present on small and

medium systems followed by Mr Grunefelder presenting with Chuck Job (Drinking Water Protection Division) on sensitive information issues.

- Ms. Pawlukiewicz described the overall US drinking water system profile as diverse and defined "large" systems as those serving 100,000 people or more. These systems comprise approximately 1 percent of all drinking water systems but serve about 50 percent of the population. Small and Medium systems serve less than 100,000.

- Ms. Pawlukiewicz explained that security issues could also apply to wastewater infrastructure, including storm sewer systems.

- Ms. Pawlukiewicz explained that, in the case of drinking water or wastewater systems, the larger systems were more sophisticated and therefore were better equipped to handle security issues. Smaller systems should therefore be the focus of technical assistenace.

- Ms Pawlukiewicz identified four major categories of concern for the security of wastewater and drinking water infrastructure:
    - Physical Destruction: could include distribution systems, storage facilities, collection systems, use of manholes for access, source water area contamination, or tampering with existing treatment chemicals.
    - Interdependencies: could include breakdown of electric, transportation, or fire protection services.
    - Biological and Chemical Contaminants: could include chemical or radiological contamination of drinking water; improper handling of treated wastewater or the use of chemicals to inhibit the treatment of biological contaminants.
    - SCADA Systems could be vulnerable to cyber attack

- Ms Pawlukiewicz explained that the basic approach to allocating funds within the program is based on making the most systems as safe as possible as soon as possible. The basic approach has focused efforts on six major areas.
    - Developing tools both preparedness and response.
    - Delivering training with the help of other organizations
    - Technical and financial assistance through the use of supplemental funds to create grants for large systems, small-medium systems, and first responders (law enforcement, medical, etc.)
    - The creation of a secure information system called Information Analysis Center. Ms Pawlukiewicz recognized Jeff Mosher from AMWA as an integral part of this system.
    - Better knowledge base and research from enhanced communication between federal and local agencies.
    - Networking with group outside utilities.

- Tools development was elaborated on and included immediate emergency response to funding access. Sandia National Lab has been contacted to help develop a drinking water vulnerability methodology. The Association of Metropolitan Sewerage Agencies has developed a wastewater vulnerability methodology being tested around the country. Emergency response guidelines developed by the task force were not yet posted to the website but were expected to be there later in the week

- For training within the drinking water protection efforts, Ms Pawlukiewicz acknowledged the contributions of the American Water Works Association for helping with general training and training for vulnerability assessments.

- Ms. Pawlukiewicz acknowledged the effort of several groups regarding wastewater security training. The Water Environment Federation, with Sandia and AWWA, created a vulnerabililty assessment methodology that was broadcast via satellite the prior November. The Water Environment Federation is also doing workshops on these wastewater vulnerability assessments. Train the Trainer programs are being implemented where water consultants could be trained to train local utilities and agencies under a program that will soon be licensed.

- Ms. Pawlukiewicz directed the audience to a web page for specific information on technical and financial assistance. The program is meant to be flexible in helping water systems of varying sizes and levels of sophistication identify their potential weaknesses and areas that may need improvement from a security perspective. Specific discussion of small-medium systems was deferred to later in the presentation.

- The information showing and analysis system is was explained primarily as an e-mail tree along with FBI alerts.

- Better knowledge and research was explained as the creation of a contaminant database that would be available around the clock to local utilities so that the best available information could be issued in case of an attack. The information is also being used to assess laboratory capabilities and capacities across the country. Ms Pawlukiewicz reported that she had a meeting on this issue that afternoon and that AWWA was meeting on this issue at the end of the month.

- Networking was then addressed by Ms. Pawlukiewicz and a list of agencies was provided including local utilities, States, water utility organizations, CDC, ORD, and public health laboratories. Consideration is also being given to supporting an existing website for medical doctors who may need to respond to public health issues associated with these contaminants. Other federal agencies that are being contacted include the FDA, ACOE, and DOI. Additional outreach will be targeted at environmentalist groups and right-to-know advocates.

- Ms. Pawlukiewicz explained that one of the greatest challenge to implementing these directives had been obtaining proper security clearance for certain classified information. She further explained that this hurdle had been cleared and that many utilities and EPA staff had been given proper clearance.

- Ms. Pawlukiewicz identified paying for improvements as another potential challenge to implementing these directives.

- Ms. Pawlukiewicz identified the appropriate dissemination of sensitive information as a difficult issue since keeping people informed could also alert potential attackers to weaknesses in security.

- Another challenge identified by Ms. Pawlukiewicz is the effective use of technology for detection of contaminants as well as the proper communication between federal and local agents in the case of a terrorist attack.

- Ms. Pawlukiewicz then directed the audience to a website and broke for questions.

Response to Questions and Comments:

- Mr.Young questioned the potential effectiveness of the vulnerability assessments based on the idea that we cannot effectively assess our vulnerability if we do not understand the threat. His concern, specifically, was that we do not understand the scale or nature of potential attacks.
- Ms. Pawlukiewicz acknowledged the fact that it is not possible to prepare for every attack scenario. However, she stressed interagency communication both at the federal and local levels toward the development of a suite of threats that may even be site-specific.
- Mr. Young questioned whether the assessment would be an ongoing process that would have to be performed in its entirety more than once.
- Ms. Pawlukiewicz stressed that revisiting the assessments would be an integral part of the small-medium, and potentially the large facility process. However, she felt that if a sound methodology were created, adjusting the assessments for new information would not be difficult. Implementing the new results could be difficult.
- Dr. Griffiths made the point that existing research in the field of genomics could be applied to advanced detection techniques for contaminants and that this may present a cost benefit.
- Ms. Pawlukiewicz thanked Dr. Griffiths for his comment and said she would forward the information to Rutgers University where her task force was sponsoring a conference on contaminant detection.
- Mr. Ramaley wanted to discuss two points. First, he felt that there was significant disconnect between federal agencies and State agencies relative to emergency response strategies and responsibilities. Second, he felt is was important for the

task force to have thought through emergency responses quite thoroughly to ensure an efficient response in the face of something like a bio-terrorist attack.

- Ms. Pawlukiewicz acknowledged that the task force had guidelines at this point, but not more sophisticated responses. She deferred to the upcoming talk from Mr. Grunefelder and suggested that the question might be better addressed once he had given his presentation.
- Ms. Surgeon acknowledged the benefit of vulnerability assessments but questioned how the blueprints and information within these assessments could be kept out of the wrong hands.
- Ms. Pawlukiewicz answered to this concern by explaining how EPA would not be receiving the detailed results of these assessments, but would be getting a certified summary for the facilities that successfully completed the assessments. EPA has no way to protect against the dissemination of the results and therefore will not accept detailed assessments. Ms. Pawlukiewicz then acknowledged that this protection only existed at the federal level and information safeguards on the local and State levels had to be implemented.

- Ms. Neidle acknowledged the need to limit EPA access to some of the more detailed information, but suggested that it would be necessary for EPA to have a solid grasp on the overall condition of existing facilities so that implementation of response can be effective and efficient.

- Mr. Ramaley responded to Ms. Neidle first by acknowledging the efforts of two agencies not mentioned within Ms. Paw's presentation: American Water Works Research Foundation and the Critical Infrastructure Protection Advisory Group. He felt that the efforts of these groups had gone a long way to gathering relevant data while keeping it from terrorist groups.

- Dr. Spath commented on the discussion by saying he felt that State's do not have adequate clearance for obtaining adequate information and methodologies relative to security issues. With regard to laboratory capacity, Dr. Spath felt that there were very few labs capable or willing to get involved in contaminant detection because of liability issues. Dr. Spath also felt that vulnerability assessments should be supplemented risk assessments.

- Ms. Pawlukiewicz answered to Dr. Spath by pointing out that there is a risk assessment component to the vulnerability assessment.

- Dr. Spath then introduced Mr. Grunefelder for the second portion of the presentation.

- Mr. Grunefelder introduced himself, explained how he came to be in his position and established that he would give a brief overview of the activities to date within the Association of State Drinking Water Administrators Ad Hoc Security Committee.

- Mr. Grunefelder stated that one of the major focuses within the committee was to avoid duplicative efforts on the State level by disseminating any correspondence between states and federal agencies that would be useful toward the completion of vulnerability assessments. Further duplicative efforts can be avoided by making available those emergency response guidelines that have been completed by selected states. Training materials could also be disseminated through materials or slideshows.

- Mr. Grunefelder expanded on Ms. Paw's mention of the security conference emphasizing that a wide variety of state and local agents were being invited in an effort to get a better understanding of the full breadth of security issues. He then placed his work and the content of the presentation in the context of meetings he attended with the Office of Homeland Security. These meetings focused on the task of pulling together important information from disparate governmental groups in an effort to develop a comprehensive nationwide infrastructure protection plan.

- Mr. Grunefelder stressed the interdependency innate in water supply infrastructure both from the perspective of those utilities that support the distribution of drinking water and those entities that depend on that supply. He also discussed the site-specific nature of infrastructure security and the fact that thinking had shifted from natural or common contaminants to more exotic biological or chemical threats.

- Mr. Grunefelder addressed the common criticism that the criminal justice department says little to define the terrorist threat by reporting that they actually know little about it. The likely scenario for protection against an attack is that the FBI finds out a day before hand, physically occupies the suspected target, and scrambles to protect against the perceived threat.

- Mr. Grunefelder recapped a discussion regarding Admiral Abbot's visit with the President where four priorities were set for national security including first response, enhancing capabilities for response to a bio-terrorist attack, border protection, and enhancement of intelligence/communication efforts. He then stressed how important water use is to addressing these top priorities.

- Mr. Grunefelder then asks what is the higher priority: water pressure (quantity) or water quality? For the purposes of security, the first priority is the delivery of water and, therefore, water pressure. Delivering good quality drinking water is therefore the second highest priority. This included the protection of all large underground access pipes for both drinking water and wastewater.

- Mr. Grunefelder identified several potential impediments to protecting infrastructure including lack of analytical capabilities and available labs, lack of intergovernmental communication, availability of resources to identify vulnerabilities and to install the systems to protect them.

Response to Questions and Comments

- Dr. Griffiths was curious as to what role was discussed in terms of risk communications.

- Mr. Grunefelder reported that this had been specifically discussed at the meeting and that they had stressed the importance of getting input from the public health community relative to communicating the risk of even common vandalizing of water supply infrastructure.

- Mr. Merry was stimulated to make a couple of observations from a larger utility perspective. First, he wanted to point out that this work had started decades earlier, but with some significant voids in the area of interdependence. Second, he felt it important to point out that terrorists may want to instill fear and a lack of confidence in government capabilities even more than wanting to successfully contaminate infrastructure.

- Mr. Grunefelder agreed and added that as we prepare for terrorist threats, we will also enhance our abilities to deal with natural disasters.

- Dr, Spath echoed this sentiment and sited California as an example of a State well prepared for natural disaster because of infrastructure security.

- Ms. Ray observed that during a contaminant incident in KY, the first response was to shut off water access. This incident was a prime example of how other services such as fire protection would suffer as a result.

- Mr. Ramaley agreed with the relevancy of this example and added two points. First, the interdependency issue with water should also be examined from the perspective of the duration for which access is lost. Many emergency situations could be exacerbated if access to water pressure is cut off for significant periods of time. Second, he felt it was important to mention that the interdependency issue extends to the SCADA system as the telecommunication systems can control the exchange of information between so many agencies during an emergency situation.

- Mr. Young added that the issue of water pressure is a prime example of the need for public education.

- Ms Neidle added that public education is an important tool in eliminating the effects of trying to scare the public as was the case with the anthrax scare.

- Mr. Baker reemphasized the site-specific nature of infrastructure security and the importance of State control over these programs and the continued communication between States and local utilities/agents.

Water Infrastructure Protection Initiative—Small-Medium System Strategy

- Mr. Grunefelder turned the floor over to Ms. Pawlukiewicz to discuss the Small-Medium System Strategy.

- Ms. Pawlukiewicz provided an overview of the people and agencies involved in the development of the strategy and said that the revisions from the Sates would be reviewed the following day. The strategy addresses four major components on an immediate basis.

- After listing the four basic components—enhancing security, emergency response plans, planning specifically for medium systems, and addressing long-term objectives—Ms. Pawlukiewicz begin with the first component. She recognizes that there are many medium sized systems that have already done enough work where common concerns can be identified and used as a base approach to other similar systems. This information could also include very specific items such as the right type of locks, cameras, etc.

- Ms. Pawlukiewicz elaborates on the second component by stating that the task force would work closely with States and utilities to provide training and technical support for emergency response plans. Outreach would be focused on first responders with special attention to their communications capabilities.

- For medium system vulnerability assessments, Ms. Pawlukiewicz discussed a potential hybrid assessment model (wastewater and drinking water) that could be modified depending on the actual size of the system. Larger systems could lean more toward the Sandia model.

- Long-term objectives would look toward increasing the capacities of small systems to provide viable protection.

- Ms. Pawlukiewicz emphasizes that there are three tools that will be used to reach the small systems: tool development, technical assistance, and training the trainer programs.

- Mr.Grunefelder added his enthusiasm for creating a small-medium size strategy and focused on balancing the need for a template with site-specific assessment. He then provided examples of how EPA support could be accessed.

Response to Questions and Comments:

- Ms. Surgeon remarked that these strategies should be integrated and involve an intergovernmental piece that accounts for the different levels of government necessarily involved.

- Ms. Pawlukiewicz asked for clarification of the question.

- Ms. Surgeon answered that the intergovernmental applies to different levels of the government and that the integrated strategy implies the communication of local agencies.

- Mr. Schwartz thanked Mr. Grunefelder for the example in Washington and asked where these tools were developed.

- Ms. Pawlukiewicz replied that these tools had been developed in Region 1

- Mr Schwartz suggested putting the tools in a memo to each Region.

- Mr. Merry Suggested another long-term objective: to encourage regional approaches.

- Dr. Spath and Ms. Ray concur that this would encourage communication within regions.

Dr. Spath introduced Mr. Chuck Job, who is Chief of the Infrastructure Branch of the Drinking Water Protection Division of OGWDW. Mr. Job discussed information security issues.

Water Infrastructure Protection Initiatives – Public Water Supply Information Security – Chuck Job

- Mr. Job spoke of the Agency's handling of sensitive information pertaining to the U.S.'s public water supply.

- After 9/11, EPA's first response was to review the information on the web and other public information to make sure that they weren't providing critical data that could be misused.

- It was important to balance the information. EPA wants to provide information to the public to maintain awareness and involvement, but they don't want to jeopardize the public's security.

- Mr. Job distributed a list of the types of sensitive information that EPA is trying to protect. This includes source locations (lat/long), intake well locations, treatment facility locations, and treatment system information.

- EPA is currently conducting vulnerability assessments to gather information pertaining to susceptibility of the large water supplies in the U.S.

- They are seeking legal advice on how much of this information can be released, relative to the Freedom of Information Act.

Mr. Job then called upon Mr. Grunefelder to give a State perspective on information security issues.

- Mr. Grunefelder discussed the idea that some information is under the control of the State, while other information is under the control of the supplier. In a recent meeting with the Office of Homeland Security, he discovered that most of the concern lies in the information that is under the water industry's control. Detailed water system plans and information of that sort are of greatest concern because they are commonly distributed for bid proposal purposes.

- Another concern he mentioned is the fact that maintenance personnel drive around in vehicles that contain detailed schematics and information that could be susceptible. Utilities must learn to carefully manage this information.

- From a State perspective, this issue needs to be dealt with on a state-by-state basis. Amending the Freedom of Information Act to allow for protection of this information would not be enough since States may have their own public disclosure laws that supercede this Act.

- Mr. Grunefelder stated that protecting watershed control areas and wellhead protection area is important, and that the ability to make this information available to local decision makers and planners outweighs the risks associated with its availability.

Responses to Questions and Comments

- Mr. Job asked three questions of the Council pertaining to information security. These dealt with adding to the list of sensitive data sources, concerns with reviews of requests for sensitive information, and balancing the need for information to be public, but protected at the same time.
- Mr. Baker responded by saying that he agreed with the types of information that EPA deems sensitive, and felt they should add treatment facility information and distribution system information as well. He gave an example of how information is posted on the web in Ohio in narrative form to avoid divulging specific information such as well locations.

- Mr. Ramaley suggests that because engineering software was found on confiscated PC's from Afghanistan, we should definitely protect this information as best we can. Mr. Ramaley sees this protection as a long-term philosophical change in the way the water industry does business.

- Ms. Roper explained that technical assistance efforts are needed to help communities change the way they do things, and the way they handle their information. It is important to provide that technical assistance and help the public assess what the threats to their systems are.

- Dr. Spath noted that he feels it is essential for the public to have access to this information. He added that information availability could be balanced. It can be made available, but not on the web, for example.

- Dr. Griffiths remarked that if the information is not made available to the public, as far as vulnerability assessments, then there would need to be a method of reassuring the public that a good assessment was done.

Dr. Spath introduced Ms. Vanessa Leiby, the Executive Director of the Association of State Drinking Water Administrators (ASDWA). Her presentation dealt with EPA's implementation of the Safe Drinking Water Act.

XI. State Perspectives on Implementation – Vanessa Leiby

- Ms. Leiby spoke of the ASDWA and EPA's accomplishments since the amendments to SDWA in 1996, and the challenges that she and her staff have faced and will face, with respect to implementation.

- Prior to the 1996, EPA primarily regulated on a contaminant-by-contaminant basis "at the tap". Since 1996, new programs like capacity development, source water assessment, operator certification, the SRF for funding mechanisms to provide for long-term treatment enhancements all greatly expanded the state role to encompass water quality protection at the source, throughout the treatment process and at the tap.

- According to Ms. Leiby, the program implemented in 1996 has been very successful. Over the years, $3.75 billion in no- or low-interest loans have been awarded to nearly 2,000 communities serving populations of less than 500 to over 100,000 people. ASDWA and EPA have been able to span the range of need, however, Ms. Leiby recognizes that there is still a lot more support needed to deal with water and wastewater resource and infrastructure issues, as mentioned in earlier presentations. One major need she mentioned was the allocation of more resources to both the wastewater and drinking water SRF's.

- Ms. Leiby explained that the states have successfully managed to maintain all the pre-1996 regulations. They have also managed to expand their efforts in the area of source water. The vast majority of the states are performing their delineations and assessments, which are all due by 2003.

- Operator certification requirements have been expanded out to the smallest of communities. A lot of effort has been put into increasing the number of certifications State exemptions for smaller utilities that were set prior to 1996 have been eliminated.

- Work is being done to enhance consolidation and cooperation between small systems and large systems to increase the quality of the drinking water being provided.

- Four or five resource needs analyses have been conducted over the past 20 years. ASDWA and EPA have identified resource and staffing limitations and is working to remediate them so they can maximize the use of their funds and the use of the tools provided to them by Congress.

- ASDWA and EPA are working to standardize the way rules are promulgated and integrated in rural communities. Consistency in monitoring programs and accountability for final products are also major focuses.

- Ms. Leiby stated that she is confident that the Agency has been responsive to the needs of the states and the water industry, and that rule promulgation and implementation in the future will facilitated by the tools, guidance and training that ASDWA and EPA are currently working on.

- Funding issues are one of the major barriers to successful implementation. To help resolve this, Congress has given EPA a 10% set-aside from the SRF program to help fund implementation. EPA and ASDWA are working to help the states access this funding source by resolving the state contribution-matching issues.

- Over the past several years, many rules have begun to undergo implementation. These include: arsenic rule, LT1 enhanced surface water rule, unregulated contaminant monitoring rule, radionucleides rule, filter backwash rule, and Stage 1 disinfection byproducts rule. Ms. Leiby explained that ASDWA and EPA are figuring out how to stagger the requirements for the different sized systems (small, medium, large) to ease the implementation process.

- Several new rules are expected in the near future, including the ground water rule, radon rule, Stage 2 DVP rule, LT2 enhanced surface water rule, coliform rule changes resulting from six-year review, and changes based on CCLs. These add even more complexity to the scheduling and planning of the implementation process.

- Further implementation complications result from the fact that a new overlay of ruling has been created under the new security programs created since 9/11. Tight funding is being stretched even more as the states work with EPA and the water utilities to enhance security.

- Ms. Leiby applauds the implementation efforts of the large suppliers, but recognizes that these make up only 400 of the 160 or 170 thousand water systems around the country. It will be a daunting task to reach all of these without the cooperation and coordination of the technical service providers, the water

utilities, and the rest of the involved parties. EPA is committed to providing protection for all systems.

- Ms. Leiby also explained that drinking water programs are also facing challenges such as drought or flood, which, to some degree, impacts the drinking water programs' quality and quantity concerns.

- ASDWA is committed to working with the Council, EPA and the water industry to ensure safe drinking water for all U.S. citizens.

Response to Questions and Comments:

- There were no questions or comments pertaining to Ms. Leiby's presentation.

XII. Closing Remarks

- Dr. Spath confirmed the tentative date for the next NDWAC meeting was the first week of December.

- The meeting was adjourned at 12:25 p.m.