THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for April 14, 2011

100 Cambridge Street, Boston, MA, 1:00 p.m.

Minutes approved June 9, 2011

Members in Attendance:

Kathleen Baskin	Designee, Executive Office of Energy and Environmental Affairs
Marilyn Contreas	Designee, Department of Housing and Community Development
Jonathan Yeo	Designee, Department of Conservation and Recreation
Gerard Kennedy	Designee, Department of Agricultural Resources
Laila Parker	Designee, Department of Fish and Game
Joseph E. Pelczarski	Designee, Massachusetts Office of Coastal Zone Management

Members Absent

Ann Lowery	Designee, Department of Environmental Protection
Thomas Cambareri	Public Member
John Lebeaux	Public Member
Bob Zimmerman	Public Member

Others in Attendance:

Paula Sturdevant Rees	Water Resources Research Center, Univ. of Massachusetts, Amherst
Sharon Tracey	The Environmental Institute, University of Massachusetts, Amherst
John Colman	U.S. Geological Survey
Kari Sasportas	Dept. of Public Health
Bruce Hansen	Dept. of Conservation and Recreation
Sara Cohen	Dept. of Conservation and Recreation
Jen Pederson	MA Water Works Assn.
Joe Cerutti	Dept. of Environmental Protection
Linda Hutchins	Dept. of Conservation and Recreation
Erin Graham	Dept. of Conservation and Recreation
Lynn Gilleland	Environmental Protection Agency
Karen McGuire	Environmental Protection Agency
Lexi Dewey	Water Supply Citizens Advisory Committee
Ted Moriarty	Irrigation Assn. of New England
Frank Koll	Irrigation Assn./Ecological Landscaping Assn.
Vandana Rao	Executive Office of Energy and Environmental Affairs
Hotze Wijnja	Dept. of Agricultural Resources
Michele Drury	Dept. of Conservation and Recreation
Marilyn McCrory	Dept. of Conservation and Recreation

Agenda Item #1: Executive Director's Report

Baskin provided an update on the Sustainable Water Management Initiative. The stakeholder committees continue to meet regularly. Agency staff and the committees are working on several fronts that should help the process, including assessing the impacts of surface water reservoirs and drafting a proposal for how permitting might be conducted taking into consideration streamflow criteria, offsets, and mitigation.

Hansen provided an update on the hydrologic conditions for March 2011. Precipitation in March was near normal statewide, with fairly wide variation across the regions. Low precipitation since the beginning of the month, combined with the pre-greenup period, heightened fire danger in the northeast and southeast parts of the state. Groundwater conditions across the state were normal, with above-normal conditions on Cape Cod. Surface water levels were below normal, except in the southeast region. Reservoir levels were near normal. Drought indices generally show no tendency for drought conditions to develop in Massachusetts through June.

Pederson asked about the status of an effort to expand the network of reservoirs that report conditions to DCR. Hansen replied that data from other reservoirs is being collected but has not yet been fully integrated for reporting.

Baskin announced that the Massachusetts Rivers Alliance and the Department of Ecological Restoration are sponsoring a two-day conference on river monitoring and climate change on May 18, with site visits on May 19.

Agenda Item #2: Vote on the Minutes of March 2011

Baskin invited motions to approve the meeting minutes for March 10, 2011.

VOTE	A motion was made by Yeo with a second by Contreas to approve the meeting minutes for March 10, 2011. The vote to approve was unanimous of those present, with one abstention (Kennedy).

Agenda Item #3: Presentation: Overview of Water Research and Outreach at the Massachusetts Water Resources Research Center and UMass Amherst

Baskin introduced Dr. Paula Sturdevant Rees, director of the Water Resources Research Center (WRRC) at the University of Massachusetts. Baskin commended the work of the center, noting that research on water issues is occurring across many disciplines. She added that the Water Resources Commission and the state are interested in exploring opportunities for better collaboration with the WRRC.

Sturdevant Rees provided an overview of the Water Resources Research Center, one of 54 national institutes for water resources, funded through the U.S. Geological Survey. She noted that there is considerable concern about funding cuts. The center's mandate is to provide a focal point for collaborations between state agencies, federal agencies, all universities and colleges across the state, and nonprofit organizations. The center's work addresses the water resources needs of the commonwealth and New England through research, partnerships, and information transfer. She emphasized that the center would like to foster two-way communication between state agencies and university researchers and between researchers and stakeholders who need the research in a usable format.

She reviewed the center's activities, including a competitive grants program, public outreach, scientific research, stakeholder engagement and education. She described each of these activities in detail. One of the center's missions is to promote interdisciplinary research. She invited commission members and others to attend the center's annual conference, held in April, and she reviewed conference topics from recent years. She also invited participation in the conference's steering committee.

Sturdevant Rees described in detail several studies and initiatives that the center is working on, as well as analytic services the center provides through its Environmental Analysis Laboratory (www.umass.edu/tei/TEI_2005/EAL.htm). She highlighted the center's efforts in fostering citizen science and working with volunteers. She also highlighted the center's collaborative efforts with academic departments across the University of Massachusetts Amherst campus, as well as with other universities, to develop courses, enhance existing courses, and develop technology tools.

She then described in detail examples of ongoing research and scientific investigations related to water resources at UMass Amherst, including projects led by researchers in Animal Science, Chemistry, Resource Economics, Environmental Conservation, Geosciences, Computer Science, and Civil and Environmental Engineering.

Sturdevant Rees invited more collaboration between the Water Resources Commission and the Water Resources Research Center. She outlined potential areas for WRC and WRRC collaboration, including serving on the center's Scientific Advisory Board, identifying creative funding opportunities, identifying internship opportunities, and looking to the center for expertise.

Questions and discussion centered on collaboration with the UMass Extension Service on agricultural issues, the work of the science advisory boards, interactions with water resources research centers in other states, and funding levels. Rao commented that state agencies could identify research needs, while the center could identify potential researchers. Sturdevant Rees noted that the Massachusetts center has an appropriation of $92,500 through the U.S. Geological Survey, but the majority of activities are funded through soft money, whereas centers in other states have larger and more stable sources of funding. Baskin commented that a new Environmental Bond Bill could potentially be a source of funding for the center.

Baskin expressed an interest in future, ongoing collaboration between state entities and the Water Resources Research Center to brainstorm on state policy needs and researcher interest. Tracy suggested a meeting once a year in the eastern part of the state and once a year in the western part of the state. Sturdevant Rees added that demonstrating support beyond the campus is important in obtaining funding from federal sources. Tracy pointed out the center's unique work in fostering citizen science. Sturdevant Rees added that the center works hard on many fronts to make the research usable, accessible, and collaborative.

Agenda Item #4: Presentation: WaterSense: The First Five Years and the Possibilities and Challenges for New England

Baskin welcomed Lynn Gilleland of the U.S. Environmental Protection Agency's WaterSense program, and Gilleland introduced Karen McGuire, chief of EPA's Drinking Water unit.

Gilleland provided background on the WaterSense program, a voluntary partnership and labeling program launched by EPA in 2006 in response to projected water shortages and other challenges

and opportunities. In recent years, the program has highlighted the importance of water efficiency in reducing energy demand.

The program emphasizes reducing water use by water-using products. Gilleland described the two major components of the WaterSense program: (1) labeling and third-party testing and certification of products, new homes, and services that use less water and perform well; and (2) partnerships within the program (irrigation, promotional, retail, manufacturers, builders, and licensed certifying bodies).

Gilleland outlined products that have earned the WaterSense label, including toilets, urinals, faucets, showerheads, and single-family new homes, as well as a certification program for irrigation professionals and individuals who wish to be WaterSense partners. The WaterSense web site (www.epa.gov/watersense/products/index.html) provides information about products and where consumers can obtain them. In response to a question about washing machines, Gilleland explained that the Energy Star labeling program incorporates WaterSense criteria. She explained that the proper use of the WaterSense label is important to the integrity of the program, and partners receive guidelines on how to use the various WaterSense logos.

Gilleland outlined the schedule for evaluating new WaterSense products, including irrigation "smart controllers," residential and commercial plumbing products, and additional professional certification programs. In response to a question about an announcement that the WaterSense program has delayed labeling of high-efficiency commercial toilets, pending research on waste transport in drain lines, Gilleland explained that drain lines in commercial buildings can be more complicated, with wider ranges of transport distances and fewer significant sources of flow to assist in waste transport. Therefore, the WaterSense program is continuing to conduct research on the drainline issues.

Gilleland reviewed program accomplishments, summarized the number and performance of WaterSense-labeled products in each category, described new product areas, described how the WaterSense New Homes Program works, and outlined the indoor and outdoor specifications for new homes. She described how the WaterSense program complements other green building standards, such as LEED and Energy Star.

Graham asked about the Department of Energy waiver of a requirement that states not set more stringent efficiency standards than those set by the federal government. Gilleland confirmed that states can now set more stringent efficiency standards for showerheads, faucets, toilets, and urinals. She added the WaterSense program would be affected only if DOE decided to lower the federal standard.

Gilleland outlined the program's collaboration with a range of partners, including more than 2,000 partners nationally, and described the benefits of partnering with the program, including a range of tools and resources, such as the "We're for Water" national campaign. She also highlighted activities of the WaterSense program and its partners in New England. She described program challenges and invited ideas on ways in which WaterSense can fit into other efforts and how it can fill needs.

Cohen asked if products are only tested premarket and if there is a lifespan to the WaterSense label. Gilleland responded that products are tested in the premarket phase, but she would have to confirm whether products are tested post-installation. She added that all products will be reevaluated when technology changes and be revisited at some point. Rao asked what incentives

drive developers to adopt the WaterSense label. Gilleland responded that feedback indicates that consumers are looking for efficiency, and builders see the WaterSense label as a marketing advantage.

Yeo asked how many water suppliers are involved in the program. Pederson responded that a fair number of water suppliers are partners, and the Massachusetts Water Works Association has worked to promote involvement by water suppliers.

Baskin noted that EEA has been tracking what other states are doing, but would like to learn from the WaterSense program and incorporate some of the approaches that have been tested. Gilleland indicated that the program would like to convene the New England partners to share ideas.

Agenda Item #5: Presentation and Discussion: Results of USGS Study of Arsenic and Uranium in Bedrock Aquifers in Massachusetts

Baskin introduced the speakers: John Colman of the U.S. Geological Survey (USGS), Kari Sasportas of the Massachusetts Department of Public Health (MDPH), and Joe Cerutti of the Department of Environmental Protection (MassDEP). She noted that the study was a joint effort.

Colman provided an overview of the study with a focus on maps showing estimated probability of occurrences of arsenic and uranium in bedrock geologic units in central and northeastern Massachusetts. He noted that bedrock wells are an important source of water supply in certain areas of the state. USGS conducted the study in cooperation with MassDEP, which was interested in identifying mapped arsenic and uranium probability zones that could be used by public water suppliers as they assess potential water supply development sites for further exploration. The study attempted to correlate concentrations of arsenic or uranium in bedrock well water with bedrock geologic units.

Colman reviewed maps showing zones where study samples exceeded the standards for arsenic and uranium concentrations in drinking water. Statistical analysis was used to predict the bedrock units where concentrations of arsenic and uranium in well water were likely to exceed the standards. Baskin requested clarification on how MassDEP intended to use the probability maps and whether public water suppliers should avoid areas where clusters of high arsenic or uranium were found from the well samples collected by USGS. Cerutti responded that DEP would advise public water suppliers to focus on the probability map zones rather than the specific sampling sites in identifying potential drill sites for water supply exploration studies.

Colman explained the methodology for estimating the number of private wells that may exceed the standard and presented results of this analysis. For arsenic, 5,700 wells were estimated to exceed the limit, and, for uranium, 3,300 wells were estimated to exceed the limit. He also presented results of a questionnaire sent to private well owners whose wells were sampled. The questionnaire indicated that the majority of respondents with well water that exceeded the standard used the water for drinking without treatment. Colman explained that testing in the areas where probability maps show higher potential concentrations could identify the majority of wells within the study area that exceed the drinking water standards.

Sasportas summarized MDPH's role in analyzing and explaining potential health effects of the USGS findings. As a public service, MDPH offered urine testing to a subset of the USGS study participants and to residents within a buffer of the Clinton-Newbury fault line, which runs through the study area. She described the health effects of short- and long-term exposure to

inorganic arsenic and uranium in drinking water. She also described how urine samples were collected, and how MDPH evaluated exposure. Results showed that none of the participants had levels of arsenic or uranium in their urine at levels of health concern. MDPH believes that, based on the information available on water testing results and the MDPH companion effort testing for arsenic and uranium in urine, the probability that anyone's well poses a health concern is very low. Sasportas noted that the sample size was small (37 participants), and that MDPH recommends that private well owners have their wells tested in accordance with local boards of health and MassDEP recommendations.

Cerutti clarified that the public drinking water standards established by the U.S. Environmental Protection Agency for arsenic and uranium are very low because they are based on a theoretical cancer threat. He also clarified that MassDEP contacts with local boards of health indicated that approximately 95 percent require testing for arsenic, while less than 5 percent require testing for radiological constituents.

Cerutti described MassDEP's extensive coordination with local boards of health in the study area before and after the release of study results. He also described outreach to the public, including staffing a call center to field questions about the study and setting up interactive maps with arsenic and uranium probability data on MassDEP's web site (*Ed. note: see list of exhibits below*). In addition, MassDEP and MDPH are considering prioritizing the highest probability areas for additional outreach to local boards of health.

Hutchins commended MassDEP for the usability and features of the interactive, web-based maps, which make it easy for a concerned individual to search by address. Kennedy asked if any unusual clusters had been identified in the study area of health effects related to long-term exposure to arsenic or uranium. Sasportas responded that the levels found in the urinalysis were not levels associated with health effects. Cerutti added that, outside of the urinalysis results, MDPH had not identified any cancer clusters. Pederson asked if the 37 participants in the urine sampling were self-identified. Sasportas explained that 144 households in seven communities were offered urine testing as a public service, and 34 responded. An additional three households contacted MDPH to request urine testing after they received their water results from the USGS, for a total of 37 participants in the MDPH urine testing effort. Cerutti added that health agents were considering changing requirements for testing, including radiological testing. There was some discussion of additional outreach efforts that could be made, and a suggestion was made that home inspectors could be targeted for outreach.

In response to questions about treatment options and costs, Cerutti reviewed some common treatment options, including filter cartridges, reverse osmosis, and ion exchange. For point-of-use treatment systems, estimated costs range from $1,600 to $2,300. Whole-house treatment systems are more costly.

Meeting adjourned, 4:00 p.m.

Documents or Exhibits Used at Meeting:

- Meeting Minutes for March 10, 2011
- Interbasin Transfer Act project status report, 31 March 2011

- Link to news release, March 21, 2011, Federal Study Maps Concentrations of Arsenic and Uranium in Private Bedrock Well Water in Massachusetts; State agencies take action to inform residents about well water testing and, if needed, treatment options: http://www.mass.gov/dep/public/press/0311arur.htm
- Current Water Conditions in Massachusetts, April 14, 2011
- Presentation: Overview of Water Research and Outreach at the Massachusetts Water Resources Research Center and UMass Amherst
- Massachusetts Water Resources Research Center handout: Supporting Research, Education, and Outreach on Water Resources Issues. (http://www.umass.edu/tei/wrrc/)
- Massachusetts Water Resources Research Center, Summary of Projects Completed over the Past Five Years
- EPA WaterSense presentation: The first five years: the possibilities and the challenges
- WaterSense program outreach materials (materials available at http://www.epa.gov/WaterSense/)
- USGS presentation: Arsenic and Uranium in Water from Private Wells Completed in Bedrock of East-Central Massachusetts—Concentrations, Correlations with Bedrock Units, and Estimated Probability Maps
- Department of Public Health presentation: Evaluation of Arsenic and Uranium in Urine as a Measure of Exposure to Contaminants in Private Drinking Water Wells
- Department of Public Health, March 2011: Questions & Answers sheet: Evaluation of Arsenic and Uranium in Urine as a Measure of Exposure to Contaminants in Selected Private Drinking Water Wells in Central and Northeastern Massachusetts (available at http://www.mass.gov/Eeohhs2/docs/dph/environmental/exposure/private_wells_urine_sampling.pdf)
- Department of Environmental Protection presentation: USGS Arsenic Study in Private Bedrock Aquifer Wells Outreach Efforts
- Department of Environmental Protection: Arsenic in Private Well Water: Frequently Asked Questions
- Department of Environmental Protection: Frequently Asked Questions Regarding Arsenic and Uranium in Private Drinking Water Wells Completed in Bedrock (available at http://www.mass.gov/dep/water/drinking/au/aulocate.htm)