WATER SUPPLY CITIZENS ADVISORY COMMITTEE
to the Mass. Water Resources Authority

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WASTEWATER ADVISORY COMMITTEE

WSCAC/WAC Meeting

Location: Waterworks Museum
Chestnut Hill, MA
October 15, 2019—10:30 A.M.

WSCAC Members:

William Copithorne, Town of Arlington
Bill Fadden, OARS
Bill Kiley, BWSC, WAC
Paul Lauenstein, NepRWA
Martin Pillsbury, MAPC
Janet Rothrock, League of Women Voters
Kurt Tramposch, Wayland Wells

WAC members:

Mary Adelstein
Adriana Cillo, BWSC
James Guiod, Advisory Board
Kannan Vembu, WAC
Stephen Green, WAC
Taber Keally, NepRWA/WAC
Wayne Choulnard, WAC
Belinda Stansbury, WAC
Karen Lachmayr, WAC
Philip Ashcroft, WAC
(Martin Pillsbury, dual member)
Craig Allen, WAC (by phone)
Dan Winograd, WAC (by phone)

Guests:

Steve Rhode, MWRA
Alison Field-Juma, OARS
John Raschko, MA OTA
Sally Carroll, MWRA
Luener Charlestra, MWRA
Denise Ellis-Hibbelt, MWRA
Susy King, MassDEP
Kyla Bennett, New England PEER
Betsy Reilley, MWRA
Kate Hogan, State rep
Mark Smith, MassDEP
Heather Miller, CRWA
John Sanchez, Town of Burlington
Wendy Leo, MWRA
John DiModica, Noresco
Sean Navin, MWRA

Staff:

Andreae Downs, WAC
Lexi Dewey, WSCAC

WSCAC Business

The meeting opened with attendees introducing themselves. Lexi Dewey requested motions to approve June and September WSCAC minutes, which were separately made and seconded, and both sets of minutes were approved by vote. Lexi then drew attendees' attention to a recent letter from the Water Infrastructure Alliance, copies of which were available at the meeting, and which both WSCAC and WAC signed onto. Finally, Lexi announced that the next WSCAC meeting will be in November, held concurrently with the MWRA Advisory Board.

WAC Business

VOTED: June minutes

Letter to legislature on "flushable" wipes, also to speak on the topic at that day's hearing on Beacon Hill.

Presentations: PFAS

Kate Hogan, State Representative:

Representative Hogan acknowledged that attendees of the meeting probably had a fair amount of knowledge of PFAS already. A recently-assembled task force of nineteen members has been organized to assess how state agencies can most effectively use their existing authority and resources to reduce and eliminate the risks of PFAS contamination. PFAS are ubiquitous, and two of the towns Congressperson Hogan represents have town-wide wells and so can be filtered, but the other two have private wells, which pose a much greater difficulty in protecting members of the public. The task force will partner with state and federal agencies to address emergency and response management and best practices, and develop a plan to address how to handle the situation moving forward by the end of 2020. The Massachusetts governor has proposed moneys for various ways to explore solutions in the next supplemental budget. The task force is looking to asking an extensive list of state agencies to provide a representative to join the task force.

The legislation for the task force is expected to pass in October (H. 3851, S. 2284). Senator Cyr is also on the bill, and Representative Jen Benson is co-sponsoring from Lunenburg. As more information comes to light, DEP may reduce the current limit of 70 parts per trillion down to 20 ppt. Education and data are key as the task force looks for ways to address the issue. Industry is also very important in this process, as there are currently no cost-efficient ways to test for PFAS or check the success of installed filters.

A member asked about filtering and testing methods, and Rep. Hogan explained that Hudson, for example, has five or six public wells with huge charcoal filtering systems on them, and the water is undergoing constant testing.

Q: PFAS is clearly a huge environmental problem, but resolving it is going to be expensive; how will that would be managed?

A: there is funding out there, and part of the task force's goal is to tie in with federal government to help resolve the issue, pointing out that military bases, which tend to use PFAS heavily, are a major source of the contamination.

Q: what is MWRA's role in the task force, specifically relating to public education, and whether funding would be available to the MWRA.

A: public education will be key, and all parties will need to be involved, from state government down to town halls, as well as individual communities, and the task force will be addressing those questions.

Mark Smith, Director of DEP's Office of Research and Standards:

Per and Poly Fluoroalkyl Substances (PFAS): Why all the Fuss?", available for viewing here.

Smith, working with other toxicologists, has been studying PFAS, and they've been looking into dropping the guidelines from 70 parts per trillion to 20 ppt.

PFAS, stands for Poly and per fluoroalkyl substances, Chemical structure: a water soluble head, and a carbon chain tail with fluorine (water insoluble). This chemical makeup means that PFAS are extremely stable, heat-resistant, and water repellant, which makes them very useful in many industries, including everyday items such as waterproofed clothing. They're considered "forever chemicals", because they don't break down in the environment (although there is one micro-organism that was recently discovered in New Jersey that might be able to break it down partially), but must be incinerated at high temperatures.

PFAS are ubiquitous, found around the world, and are very common in drinking water and soils. They've been used since the 1950s, and PFOS and PFOA were phased out in 2006. There are thousands of compounds, and uses include manufacturing, textile treatments, paper coatings (such as pizza boxes, since PFAS are grease-resistant), floor wax, some hairsprays, and aqueous fire-fighting foam, among others.

PFAS are a health issue, because these longer-chain compounds are excreted from the human body extremely slowly – it can take anywhere from a year to over 8 years for the body to get rid of half of it. This means that people who have consumed PFAS are experiencing long-term exposure to very toxic, very persistent chemicals. Some PFAS can accumulate into fish and wildlife, or contaminate drinking water, and they remain in the environment for extended periods of time as well.

There are a large number of potential health risks. There are developmental risks to fetuses and infants; contamination crosses the placenta and is expressed in breast milk, and exposure to PFAS reduces immune responses to vaccines in children. They cause endocrine disruption and cancers (kidney, testes, pancreas, and liver).

The science and regulations around PFAS is evolving rapidly. Drinking water advisories and standards are not concrete, and the EPA's drinking water advisory is only for PFOS and PFOA, not other compounds. Most states use 70ppt (parts per trillion) as a default limit. Minimum detectable amount in drinking water is 1.5- 2 ppt. Several states have lower limits than the EPA's recommendation of 70ppt, or include additional compounds.

DEP has been focusing on drinking water contamination, as it's the predominant form of exposure. They're also focused on hazards like cleanup regulations, wastewater residuals, and other aspects of the problem.

The current adopted guidelines for drinking water are based on five compounds, up to 70ppt. Other agencies have released drafts of recommendations that are more stringent, but these are still in process. DEP also requires new public water supply sources must test for PFAS before going online. If they test above 20ppt, they are encouraged to treat or seek an alternative source. This is not currently required, but so far, there's been full cooperation. Statewide testing for PFAS is being posted on publicly available websites, and DEP has initiated a targeting sampling program centered around where PFAS have been detected.

Each sample costs $200-$400 to test. This price tests for up to fourteen compounds, but regulations only recommend actions in regards to five of these compounds, with a possible sixth to be added in the near future. Reporting limits have been lowered over the past several years.

Q: do pesticides commonly contain PFAS, including dormant oils, and a query about how testing is actually done.

A: dormant oils are probably not sources of PFAS, and the analytical method for testing is GC Mass Spec.

Q: What about legislation banning further use of PFAS.
A: the longer chain ones have largely been phased out, but the shorter chain ones are still being used.

DEP is also working on regulations for certifying labs for drinking water analysis, which should be implemented in the next few months, and has established "high priority" status for treatment projects seeking Drinking Water State Revolving Fund financing.

Per the MA Office of Research and Standards (ORS) issued Guidelines for Drinking Water (adopted June 12,2018), the chemicals that are currently limited to 70 ppt are **five PFAS compounds** (perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluoroheptanoic acid (PFHpA), perfluorononanoic acid (PFNA), and perfluorohexane sulfonic acid (PFHxS)) **AS OF?** Jan 28, 2019

These are based on EPA Health Advisory values on PFOS and PFOA, and extended to closely related compounds that have less extensive data available, based on similarities in chemical structures, half lives, and toxicity.

DEP received a petition from Conservation Law Foundation's Toxics Action Center that requested the adoption of a treatment standard for all PFAS in drinking water down to 1ppt. MassDEP agreed to initiate a standard maximum contaminant level for drinking water, and will further consider the proposal. They're also currently reconsidering the Office of Research and Standards [Drinking Water] Guidelines, and have proposed a groundwater cleanup standard of 20ppt.

Q: what are the ill effects of high levels of exposure vs the lower levels of exposure that most members of the public experience.
A: while epidemiological studies are often difficult to draw conclusions from, there is (non-conclusive, but consistent with current information) evidence that low levels of exposure to PFAS can have a harmful effect on physical health.

The original Guidelines considered all six of the PFAS that were included in a monitoring program (the only chemicals for which data was available): five long-chain compounds and one shorter-chain compound. , and addressed the five longer-chain compounds. More recently, they are focusing on six compounds (excluding a seventh that has a much shorter half-life and is much less toxic) that are structurally similar to PFOS and PFOA, which includes a new compound, PFDA.

Smith shared a chart outlining a comparison of permitted values in the states that limit PFAS, noting that Massachusetts is considering lowering the limit from 70ppt (for the sum of all five current PFAS) to 20 ppt (for the sum of all six PFAS, the current five plus an additional proposed compound). A few other states have individual limits for each compound, which are in many cases lower than the suggested 20ppt limit, but MA is using a sum total, and including those compounds that don't currently have suggested limits, but are similar in chemical structure to the more known PFAS. (Most other states use the EPA default of 70ppt for PFOS, and do not have limits on the other compounds.)

The hazardous waste cleanup regulations are due for new amendments, and will include new standards for groundwater (20ppt for sum of the six PFAS) and soil (still under consideration in light of recent data). The public comment period closed in July, and MassDEP is finalizing standards in response to information and comments. The public comments included answers to the questions of which PFAS should be regulated, whether the proposed standards are appropriate, whether Massachusetts' proposed summation of the chemicals is appropriate, and other comments. There was a widely varied response to these questions.

MassDEP has issued Requests for Information, and some Notices of Responsibility, from industries in areas where PFAS are detected. They've also taken samples from public and private wells, have issued guidance to Licensed Site Professionals (LSPs) for PFAS investigations, and proposed a draft MCP Method 1 cleanup standards for soil and groundwater, which should be finalized in 2-3 months.

PFAS are also found in wastewater and residuals, the significance of which is still in question. MassDEP is following developments, including background concentrations in soils and data from other states, such as a specific study from Maine which showed screening levels being exceeded. They're also collecting further Massachusetts data, and requiring at least one round of PFAS testing on some materials. EPA does not have an approved method of measuring in soils, so MassDEP is reviewing proposed laboratory methods and data. Efforts are also being made to determine the source of PFAS, and debating whether pretreatment options would be warranted.

Q: Is the EPA is studying standards of PFAS in effluent.
A: the defense budget authorization that passed a few months ago had riders directing the EPA to work on PFAS issues. The House version included setting water quality and treatment standards, while the Senate version did not, and the bill is currently in negotiations. Drinking water remains the priority.

Smith: we know very little about how PFAS collect in crops, other than a study done on cranberries, which did not contain a concentration of PFAS. The compounds do cause endocrine disruption (although not feminization); Silent Spring Institute is doing a study on long-term effects of human exposure to PFAS.

DEP is aware of efforts to collect and dispose of the firefighting foam that contains PFAS, contact water bottlers for sampling results, and sharing information between agencies and states. MassDEP ORS and WES are following research and policy developments.

PFAS show up in groundwater and surface water, as well as drinking water.

Steve Rhode, lab director with MWRA:

presentation: PFAS have been detected throughout the world. In tests done between 2014 and 2016, 180 samples all returned as non-detectable amounts of PFAS. In the summer of 2019, public water supplies were asked to perform voluntary testing. See the presentation for compounds that were detected; he also noted that the lab used by the MWRA could detect parts per quadrillion, so some of the numbers are "trace detect" or "ultra trace detect". The compounds were probably ending up in the reservoirs from the surrounding environment, perhaps from rain or airborne transport.

The results, which are available on the MWRA website, are significantly lower than the proposed 20ppt.

Biosolids. Maine required biosolids testing in spring of 2019 – see presentation for results; MWRA's results are in the lower half. An independent test of biosolids from 2014 appears consistent with current results.

The source of the PFAS in biosolids is mostly what people eat and excrete – diet is a greater source of PFAS for the general public than drinking water. Blood serum levels have been decreasing over the years, although the numbers are much higher in biosolids than they are in drinking water. Many municipal composts accept paper products, which results in compost that is much higher in PFAS. MWRA is participating in a study where Deer Island effluent was collected for five days; results will be available mid-November. Rhode forecasts that the average range will be around 110, based on a study from Australia that shows an average of sludge content similar to MWRA's (34 to MWRA's 39). The numbers typically increase from influent to effluent, because compounds that we don't yet measure break down into the compounds that are currently regulated.

Sources of PFAS include textile stain and soil repellents, food-contact paper, and surfactant applications, including aqueous film-forming foams, used to extinguish fires involving highly-flammable liquids, as well as industry uses such as textiles or anti-mist films.

Research of bioaccumulation of PFAS is still in process, but it's one of the reasons that there is concern about these substances.

A particular dairy farm in southern Maine was in the news as being contaminated with PFAS; the farmer was using biosolids, and the neighboring farm was using paper waste, which is very high in PFAS, so the source is undetermined. Outside of this farm, PFAS have not yet been found significantly in milk and vegetables, but meat and seafood both have higher concentrations.

Another question was posed about labeling requirements. Many products that use PFAS are not required to disclose what chemicals they're using, due to confidential business information practices.

There are several artificial turf fields near Sudbury Reservoir. MWRA is testing for Dioxane, which is a related chemical.

We don’t yet know where PFAS are coming from, or what effect they’re having; more research is necessary.

The treatment option is currently activated carbon. Reverse osmosis also works, but is impractical on a large scale. Both these options generate a concentrated waste, and the activated carbon can be regenerated, but won’t decompose the PFAS, so there is a risk that the compounds will go airborne.

WSCAC will next meet jointly with the MWRA Advisory Board on November 21, 2019, at 11:30 am at the Wellesley Free Library. Please visit our website for more information on this meeting.