

**RESPONSE TO PUBLIC COMMENTS**  
**on**  
**TENTATIVE DETERMINATIONS TO EXTEND THE VARIANCES**  
**FOR COMBINED SEWER OVERFLOW DISCHARGES**  
**to**  
**ALEWIFE BROOK/UPPER MYSTIC RIVER**  
**and**  
**LOWER CHARLES RIVER/CHARLES BASIN**

**August 31, 2016**

MassDEP acknowledges the receipt of written public comments received during the public period (July 7 – August 12, 2016) as well as verbal public comments heard during the August 8, 2016 public hearing. Below are responses to the comments received related to the extension of the two CSO Variances.

**THE VARIANCES AND CLASS B DESIGNATION**

**Comment:**

The MWRA Wastewater Advisory Committee supports the extension of the Variances because we need data to better address the pollution that affects these rivers. [**Andreae Downs, WAC**]

**Comment:**

The MWRA Advisory Board supports the extension of the Variances. They allow for more data, better evaluations, and good science. It will be useful to look at new data from Municipal Separate Storm Sewer System (MS4) communities with CSO data. He noted that MWRA has not stopped working – there are many projects underway including headworks improvements and efforts to increase redundancy. [**Joe Favaloro, MWRA Advisory Board**]

**Comment:**

The Variances allow for the continued pollution of Alewife Brook. He has seen the water quality deteriorate in the last 15 years and is worried that we will “Variance” these waters to death. [**Michael Ripple, Somerville resident and river paddler**]

**Comment:**

There needs to be a plan developed to meet the Class B standard, with new cost estimates for CSO and SSO elimination. She requested that the public have opportunities to comment as early as possible. [**Ellen Mass, Friends of Alewife Reservation**]

**Comment:**

She understands the need for Variances regarding this area, however progress toward attaining Class B standards must continue during this period. [**Paula Sharanga, Member of Friends of Alewife Reservation and MyRWA**]

**Comment:**

The City of Cambridge DPW strongly supports the extension of these Variances and is committed to continuing work to improve the water quality of the Charles River and the Alewife Brook. **[Katherine Watkins, City of Cambridge]**

**Comment:**

A Class B<sub>CSO</sub> designation is a downgrading of the Charles River and is unacceptable. It is a significant and potentially permanent step backwards after all of the forward progress that has been made. The Charles River is very close to meeting water quality standards 100% of the time. The swimming standards were met 19% of the time in 1995 and now the swimming standards are met over 60% of the time. **[Julie Wood, Charles River Watershed Association]**

**Comment:**

It is critical for MassDEP to adopt a relevant, rigorous monitoring plan to determine the effects of the LTCP measures. Without sophisticated, thorough, and transparent monitoring during the three-year, post-construction monitoring program and system performance assessment, it is quite possible that we will not know how to proceed forward from December, 2020 – despite hundreds of millions of dollars in infrastructure investment. We therefore support the granting of a seventh Variance extension for the Alewife Brook/Upper Mystic on the condition that the water quality monitoring and analysis is designed to be as informative as possible. **[EkOngKar Singh Khalsa and Patrick Herron, Mystic River Watershed Association]**

**Comment:**

The post-construction monitoring evaluation must proceed on the assumption that the Alewife and Upper Mystic can and should meet the Class B water quality standards rather than being downgraded to the Class B<sub>CSO</sub> standard indefinitely. As the LTCP did not strive for complete CSO elimination in the Alewife and Upper Mystic, it would appear inevitable that the Variance continue past 2020. **[EkOngKar Singh Khalsa and Patrick Herron, Mystic River Watershed Association]**

**Comment:**

We should look at everything (CSOs, SSOs, and stormwater) all at once to prioritize improvements. We need to spend our money properly and focus on the largest pollutant loads. It appears that B<sub>CSO</sub> water quality designations are inevitable because of stormwater violations. In accepting that, he would like to see regular and consistent improvements made in these waters, with no backsliding. The information in the Variances fact sheets is not enough to decide whether the Variances should be extended. He would like to focus on how things have improved in the last three years (not 20 as shown in the fact sheet). We should use the next year (before the Performance Assessment begins) to look at the data we have and determine what new data are needed. **[Roger Frymire, Cambridge resident]**

**MassDEP Response:**

The present CSO policy and water quality standards state that no CSO discharges are authorized to a Class A or B receiving water. Therefore, unless all CSO discharges in these water bodies are eliminated under all conditions, the B standard is not met. At present, the planning process has not identified a technically feasible and affordable CSO control program that would result in complete elimination of CSO discharges under all conditions. MassDEP reviews its water quality standards, subject to EPA approval, every three years, during which both the standards and the classifications for the CSO-

impacted waters are reviewed. The evaluation period following the analysis of data from MWRA's targeted ambient sampling program will be important in documenting water quality conditions, CSO impacts, and appropriate receiving water standards. If no feasible and affordable CSO control program can be implemented to eliminate CSO discharges, the permittees must identify and implement the highest feasible and affordable level of CSO control. The information gathered in the Variance process will help MassDEP make such determinations.

## **MONITORING AND REPORTING**

### **Comment:**

Though the water quality has improved, monitoring is still critical to better identify the remaining sources of pollution. **[David Barlow, Arlington resident and MyRWA volunteer]**

### **Comment:**

MWRA should modify their Charles River Lower Basin sampling schedule to conduct targeted, frequent (i.e., daily for the following five days) monitoring of bacteria and nutrient parameters following CSO events, during wet weather non-CSO event, and during dry weather periods. Sampling on a pre-scheduled or short-term basis is not adequate "to assess the water quality impacts of remaining CSO and non-CSO pollutant sources and loads over a range of storms events, and the associated level of attainment of water quality standards in the Lower Charles River/Charles Basin." **[Julie Wood, Charles River Watershed Association]**

### **Comment:**

The Lower Charles River Basin Fact Sheet for this Variance extension states "MWRA's LTCP hydraulic model and water quality model simulations showed that the LTCP control levels bring CSO discharges into compliance with Class B 'fishable/swimmable' water quality criteria more than 98% of the time." If this is based on the LTCP target of a maximum of 3 overflows to the Lower Basin, it assumes that CSO events only elevate water quality for roughly 2.5 days after a CSO event. According to CRWA's data analysis, water quality is still significantly elevated above swimming standards 3 days after CSO events. Monitoring should be conducted for multiple days following CSO events and MWRA should also add automated sampling to collect multiple time-paced or flow-weighted samples across storm events to accurately characterize water quality conditions. Finally, it is not just the amount of time water quality levels are elevated above standards that is relevant, but also how high concentrations are. **[Julie Wood, Charles River Watershed Association]**

### **Comment:**

We request that the sampling plan include a minimum of five days of consecutive sampling be undertaken to evaluate the residency and impact of CSO discharges on the water body. We also strongly advocate for direct sampling at all CSO outfalls – including those permitted to continue polluting as CSOs, those converted to separated systems, and those intended for elimination under the LTCP. **[EkOngKar Singh Khalsa, Patrick Herron, and Nathan Sanders, Mystic River Watershed Association]**

**Comment:**

We applaud the plan to broaden MWRA’s water quality sampling program to support long-term water quality decisions for Alewife Brook/Upper Mystic and hopefully expand to the Alewife sub-watershed of Little River and Little Pond whose federal status is D-. This requirement should be expanded to include the full range of necessary data, including new estimates of the costs of further reducing CSOs in the watershed, the costs of reducing SSOs, and the impacts of CSOs and SSOs in different locations to impairments for additional pollutants. We would like early opportunities for public comment on the water quality monitoring plan and this sampling should not wait until after the Court-mandated three-year assessment of the LTCP, but should proceed simultaneously with that effort. There should also be a thorough analysis of the costs, benefits and economic impacts of full attainment of Class B standards for Alewife Brook and its tributaries. **[Ellen Mass, Friends of Alewife Reservation]**

**MassDEP Response:**

In order to more closely evaluate the water quality impacts after large storms (both with and without CSO discharge events), MWRA has committed to modifying their water quality monitoring program by conducting additional consecutive-day monitoring at specific locations in the Alewife/Mystic watershed, both during CSO and non-CSO conditions. During the final Variance period, 2019-2021, MWRA will submit an expanded water quality assessment to MassDEP, and will provide an updated assessment of the impact of CSO activations on the Alewife Brook, Upper Mystic River and Charles River Basin, and the change in water quality corresponding with the implementation of the LTCP and associated CSO reductions. This is a change from the current sampling design in which MWRA has tried to balance wet and dry sampling in each area to characterize multi-year trends.

While there will be no formal solicitation of public comments on the sampling plan, MassDEP will make the draft scope of work available to interested parties, who may in turn, at their discretion, provide comments for MassDEP and EPA to consider in reviewing the plan.

**PUBLIC NOTIFICATION**

**Comment:**

There need to be stronger words on signs, e.g. “infections,” “human waste”. **[Michael Ripple, Somerville resident and river paddler]**

**Comment:**

There need to be more signs posted. **[Ellen Mass, Friends of Alewife Reservation]**

**Comment:**

The public notification requirements should be strengthened. We would like notification when any CSO discharges and have information posted on the MWRA, Cambridge, and Somerville websites as well as social media. The effluent characteristics should be reported along with flow volumes. Also, modeled activation volumes may not be comparable to metered measurements so more metering should be installed. **[EkOngKar Singh Khalsa, Patrick Herron, Nathan Sanders, Mystic River Watershed Association]**

**Comment:**

We would like to work with MWRA for better public CSO notifications. [Julie Wood, Charles River Watershed Association]

**Comment:**

In the Alewife/Upper Mystic Tentative Determination, Variance Conditions C. iv. (pages 3-4): Cambridge will continue to notify agencies and groups of CSO events from CSO regulators that are remotely monitored and under the care and control of the City of Cambridge. CSO regulator CAM002 is expected to be the best indicator of CSO activity along Alewife Brook. The City does not have the capacity to monitor activations at Somerville or MWRA outfalls. [Katherine Watkins, City of Cambridge]

**Comment:**

Cambridge is committed to improving timely notification, however, we ask that the notification period change (from 24 hour notification to 12 hour notification) be implemented beginning October 1, 2017 to allow time to install electronic monitoring and automatic notifications, including necessary procurement processes. Please revise the language to read as follows: “The City of Cambridge, in collaboration with MWRA and Somerville, shall provide email notice to EPA, MassDEP, local health agents, and the Mystic River Watershed Association of CSO discharge events in the Alewife Brook from CSO regulator CAM002 within 24 hours of the onset of the discharge. Beginning October 1, 2017, the notification will be within 12 hours of the onset of the discharge.” [Katherine Watkins, City of Cambridge]

**MassDEP Response:**

Public notifications using signage and email notifications have been included as Variance conditions in the past and are being carried forward in this Variance term. The requirement for the permittees (MWRA, Cambridge, and Somerville) to post additional CSO information on their website has been expanded, so that each permittee must update the CSO discharge information, at a minimum, on a quarterly basis on their websites for their outfalls. In response to the request by the City of Cambridge, the Variance conditions have been modified to require notification within 24 hours until October 2017, and then require notification within 12 hours beginning October 1, 2017. MassDEP encourages stakeholder groups to work with the CSO permittees, or independently, to more effectively disseminate accurate, available information through the use of social media and other channels.

**MWRA PERFORMANCE ASSESSMENT**

**Comment:**

We understand that the Variance process is separate from the Performance Assessment plan process. CRWA is eager to play an active role in the planning of the assessment and would like the opportunity to provide comments before any public comment period. The assessment plan is a critical element in the Boston Harbor Case and there should be significant stakeholder input into the design. In a review of annual averages of modeled discharges and measured discharges for Cottage Farm, CAM005, CAM007 and CAM017, we see that CAM005 averaged 4.8 annual discharges when the model only predicted an average of 3 per year. Additionally, the measured average annual volume for the period was about 12% greater than the modeled volume. This was similarly the case for CAM017, annual averages of modeled overflow occurrences and volumes were lower than measured, therefore the model was under predicting

the impacts at those sites during that period. More recently in 2012, 2013 and 2014 the model under predicted overflow volume at Cottage Farm. In 2013, the model predicted one overflow for CAM005 when four occurred. The model is also over predicting overflow occurrence and volumes in particular years and at select sites. It is essential to have on the ground measurements as opposed to relying on a model when the stakes are so high. **[Julie Wood, Charles River Watershed Association]**

**Comment:**

Thanks to MWRA for all of their work. MWRA should be asked not only to predict activations/volumes of CSO discharges, but also to assign a recurrence frequency for each active outfall (i.e., five-year storm, six-month storm). Also, there are a few anomalies between the modeling and metering data. We need to understand these anomalies before we can accept the modeling. He appreciates that MWRA's scope of work for the sampling plan needs to be open for public comment. **[Roger Frymire, Cambridge resident]**

**MassDEP Response:**

The three-year MWRA Performance Assessment is a requirement of the federal court order, and MWRA must commence the assessment work by January 2018, and complete a report on the assessment work by December 31, 2020. MassDEP is committed to soliciting public comments on the scope of work for the MWRA's Performance Assessment. MassDEP anticipates receipt of the scope of work in May 2017, and will make the scope available for public review, and will provide notice in the Environmental Monitor for a 30 day public comment period.

**CLIMATE CHANGE**

**Comment:**

MWRA and the City of Cambridge should be required to conduct an analysis of the sewer system under future rainfall and sea level rise conditions expected in the northeast as a result of global climate change. We ask that this be a public process which includes open planning meetings, opportunities to provide input on model scenarios and detailed public presentations of results. In the 52 year period from 1958 to 2010, our area has experience a more than 70% increase in the highest 1% occurrences of daily precipitation, and unfortunately these are the types of rain events that are associated with combined sewer overflows. The Boston Water and Sewer Commission and the City of Cambridge have both developed projected increases in the 10-year 24-hour design storm. The City of Cambridge has also developed projections for the 25-yr and 200-yr design storms. Cambridge is predicting a nearly 2" increase in both the 10 and 25-yr design storms in the coming 40 years. We cannot let an increase in extreme weather events set us back 20 years in the CSO mitigation process. Understanding these potential impacts is an essential element of understanding future water quality impacts. **[Julie Wood, Charles River Watershed Association]**

**Comment:**

To prepare for the rigorous evaluation that will follow the post-construction monitoring, the MWRA should revise its sewer system and rainfall flow models to bring them fully up to date and consistent with all relevant federal data – particularly as it relates to the current and projected impacts of climate change. **[EkOngKar Singh Khalsa and Patrick Herron, Mystic River Watershed Association]**

**Comment:**

The “typical” year needs to be reevaluated because a “typical” year is no longer typical. He doesn’t even think it was useful in its original incarnation. **[Roger Frymire, Cambridge resident]**

**Comment:**

New data have shown that past assumptions about storm frequencies and severities are no longer valid. More recent projections of highly increased rainfall patterns must be incorporated into analyses of future flooding, in predicting CSOs and SSOs, and in optimizing MWRA operations to prevent CSOs. It has been demonstrated how extremely vulnerable the low lying Alewife region is to flooding under anticipated storm and sea level rise conditions. **[Alice Heller, Cambridge resident]**

**MassDEP Response:**

The Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control in 2006 provides the basis for MWRA’s CSO control responsibilities for the Performance Assessment. The CSO activations and volumes referenced in that document are predicated on the “typical year” as established in the MWRA CSO control plan back in 1997. Accordingly, MassDEP expects use of this “typical year” to be the focal point of the Performance Assessment.

However, MassDEP acknowledges the issue of climate change is becoming a national and local concern due to a number of issues including changing precipitation patterns over time. MassDEP is carefully reviewing the information in the recent release of Atlas 14 by the National Oceanic and Atmospheric Administration (NOAA), which is the most recent comprehensive precipitation data set. MassDEP will continue to monitor the CSO activations and volumes, and the associated storm events to consider the issues related to climate change. While storm recurrence frequencies have changed, especially for larger events, MassDEP does not expect the benefits of MWRA’s CSO control plan to be compromised significantly for the events occurring in the “typical year” used to evaluate the effectiveness of CSO controls.

**GREEN INFRASTRUCTURE**

**Comment:**

CRWA would like to be part of an appointed working group that examines the issue of what further CSO reductions are possible through increased implementation of Green Infrastructure without causing “widespread social and economic impact.” **[Julie Wood, Charles River Watershed Association]**

**Comment:**

We applaud MassDEP for highlighting the Green Infrastructure (GI) projects completed by Cambridge and others as part of their CSO control strategy. We strongly recommend that the post-construction monitoring report include analysis of the impacts of the completed GI projects on the total CSO discharge reduction achieved through the LTCP. Given the substantial advancements in GI technology since the original development of the LTCP, we further recommend that any revised cost-benefit analysis incorporate cost scenarios leveraging GI to the maximum extent practical. **[EkOngKar Singh Khalsa and Patrick Herron, Mystic River Watershed Association]**

**MassDEP Response:**

MassDEP supports the use of Green Infrastructure to complement the substantial investments made in pipe infrastructure improvements made to date, and where proposed, as options to traditional CSO control approaches.

**INFILTRATION/INFLOW**

**Comment:**

As one of the Nine Minimum CSO Controls, MWRA should continue its technical assistance to efforts to eliminate all infiltration and inflow (I/I). It is important to understand how viable continued I/I reduction is as a CSO mitigation strategy and therefore ask that MWRA report on their I/I program's success. Furthermore, MWRA should leverage the data it has already collected to provide I/I data at meters, locations of meters, and statistics of drainage (area, pipe length) and report on areas where the highest I/I levels remain, so that municipalities and advocates can focus their efforts on those locations.

**[EkOngKar Singh Khalsa and Patrick Herron, Mystic River Watershed Association]**

**MassDEP Response:**

MassDEP has expanded the requirements in the Variance for MWRA to assist member communities in gathering information on the I/I estimated in their sewer systems. Further, MassDEP promulgated regulatory changes in April 2014 requiring all sewer system authorities to submit an I/I Analysis to MassDEP for review and approval on or before December 31, 2017. MassDEP concurs that MWRA member communities, even those without CSOs, will need to identify and remove excessive I/I to their systems to address the regional issue of wet weather related overflows, both CSO's and Sanitary Sewer Overflows. MWRA's annual I/I report is located at: <http://www.mwra.state.ma.us/harbor/pdf/infinf.pdf>.

**UPSTREAM COMMUNITIES**

**Comment:**

We need water quality sampling in Little River which flows into Alewife Brook. Even if all of the CSOs are closed, we will still have water quality problems because of stormwater. We should also consider how new development will affect water quality. **[Ellen Mass, Friends of Alewife Reservation]**

**MassDEP Response:**

MassDEP agrees that water quality improvements in the Little River and upstream communities will be necessary to achieve the goal of improved water quality in the Mystic/Alewife watershed. MassDEP and EPA have been working with many communities within each watershed to improve water quality issues not only with CSO abatement projects, but also illegal storm drain connection projects, I/I removal work, MS4 stormwater permit compliance, SSO abatement projects, and enforcement. These efforts will continue to improve water quality in each affected watershed. In addition, MassDEP has a State Revolving Loan Program which any community, Commission, District, or Authority may pursue to make improvements to their system that would improve water quality. More information on this low interest loan program is located at: <http://www.mass.gov/eea/agencies/massdep/water/grants/clean-water-state-revolving-fund.html>.



## **COST/BENEFIT**

### **Comment:**

We strongly recommend that a comprehensive cost-benefit analysis be performed that considers both costs and benefits, along with updated information on sewerage burdens and evolving river usage, to determine the appropriate level of CSO mitigation for the Alewife and Upper Mystic. The analysis should be overseen by an independent body, which should have diverse representation particularly including entities having disparate and complementary interests in preserving environmental quality, public health, and economic strength. **[EkOngKar Singh Khalsa and Patrick Herron, Mystic River Watershed Association]**

### **MassDEP Response:**

A review of the costs, benefits and affordability of higher levels of CSO control must be done by MassDEP and approved by EPA before any change can be made to the water quality standard. MassDEP intends to gather sufficient information during the Variance process so that a final water quality determination can be made.

## **CLARIFICATIONS AND CORRECTIONS**

### **Comment:**

In the Charles River/Charles Basin Fact Sheet, Table 2 (page 8):

- The Long-Term Control Plan footnote #2 references sewer separation work that is ongoing/planned within the City of Cambridge. This work is independent of the MWRA's LTCP.
- The City is committed to continuing this work as part of our aggressive long term capital improvements program, however, the MWRA is not providing any funding for these projects and the schedule for these projects has not been committed to by the City and is contingent on funding, permitting and other constraints.
- The footnote indicates that the levels of control associated with the LTCP anticipate the completion of these additional Cambridge sewer separation projects. These projects should not be assumed to be completed by during the post-construction monitoring period and should not be used to achieve the required LTCP level of service, but rather as an enhancement to the LTCP.

In Figure 1, page 5: CAM009 and CAM011 are temporarily closed during the City's hydraulic analysis of these tributary areas. The MWRA's LTCP does not require the closure of these outfalls and efforts are underway to evaluate the best use for these outfalls. **[Katherine Watkins, City of Cambridge]**

### **MassDEP Response:**

These corrections/clarifications have been made in the Charles River/Charles Basin Fact Sheet. Figure 1 has not been changed but the comment above about CAM009 and CAM011 has been added to the second paragraph on page 6.

### **Comment:**

MWRA believes that the current language in the "Implementation of the LTCP" sections does not reflect that MWRA is required to submit the results of its performance assessment demonstrating compliance with the levels of CSO control specified in its LTCP to EPA and MassDEP by December

2020 in accordance with the Court Order in the Boston Harbor Case. MWRA provided clarifying language. **[Mike Hornbrook, MWRA]**

**MassDEP Response:**

We have included the clarifying language in both Variances.

**Comment:**

MWRA requested a correction in the Variances under “B. Other Actions to Minimize CSO/Sanitary Discharges,” ii., 2.: “MWRA metering data by each MWRA member sewer community, broken down into estimates of average monthly sanitary flow, average monthly infiltration and average monthly inflow.” This will make the Variances consistent with MWRA’s Annual I/I Reduction Report required under their NPDES permit. **[Mike Hornbrook, MWRA]**

**MassDEP Response:**

This has been corrected.

**Comment:**

In the Variances under “D. Receiving Water Quality Monitoring,” remove “and non-CSO” from the following sentence: “The work shall be adequate to assess the water quality impacts of remaining CSO and non-CSO pollutant sources and loads over a range of storms events, and the associated level of attainment of water quality standards.” Determining the impacts of all non-CSO sources is beyond mandate to control CSO discharges. **[Mike Hornbrook, MWRA]**

**MassDEP Response:**

We concur and have made this correction.

**Comment:**

In the “Tentative Determination to Extend Variance Extension Combined Sewer Overflow Discharges to Lower Charles River/Charles Basin,” Variance Conditions C. iv. (page 3): Replace “...in the Alewife Brook/Upper Mystic River watershed” with “...Lower Charles River/Charles Basin.” **[Katherine Watkins, City of Cambridge and Mike Hornbrook, MWRA]**

**MassDEP Response:**

This has been corrected.