

Response to Public Comments

From July 24, 2009 to August 22, 2009, the United States Environmental Protection Agency (“EPA”) and the Massachusetts Department of Environmental Protection (“MassDEP”) (together, the “Agencies”) solicited public comments on a draft NPDES permit developed pursuant to a permit renewal application from the City of Cambridge Department of Public Works (“Permittee”) for the reissuance of a National Pollutant Discharge Elimination System (“NPDES”) permit to discharge sanitary wastewater and storm water from various outfalls to Alewife Brook and the Charles River in Cambridge, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The final permit is mostly identical to the draft permit that was available for public comment, with the exception of the following changes which also list the corresponding response where applicable:

1. The date required for submittal of the first annual report in Part I.D.5 was changed from April 15th to April 30th .(Comment A1)
2. The date required for the submittal of the review and update of the Nine Minimum Control (NMC) program in Part I.B was changed from April 15th to April 30th . (Comment A2)
3. Permit Attachment B has been revised to reflect that the combined sewer overflow (CSO) listed as CAM002 has been changed to reflect that there are two CSOs associated with one CSO regulator. These CSOs have been designated CAM002A and CAM002B. (Comment A4)
4. The wording “issued by the MassDEP” has been added to Part I.A.1.d to reiterate that MassDEP issues water quality standards variances. (Comment A5)
5. Part I.C.3 has been revised to correctly refer to the unauthorized discharges section of the permit as Part I.E., not I.F. (Comment A6)
6. Part I.C.7 of the final permit has been revised to remove the word “Cambridge”, in order that property owners in Arlington and other surrounding communities subject to flooding also receive press releases regarding CSOs. (Comment E4)
7. The final permit has been revised at Part I.D.5 to require the permittee to assess the potential for river inflow into the Cambridge combined sewer system in the Alewife Brook watershed and if such potential exists, an assessment of the cost, feasibility, and effectiveness of installing inflow controls. (Comment C3)

8. Footnote 1 on permit Attachments A and B have been revised to note that the CSO activation frequency and annual volume limits are based on a typical year as defined in the Facilities Plan. (Comment A9)
9. Attachment E to the final permit which is the “Second Stipulation document” now includes revised Exhibits A and B.. (Comment A10)

Copies of the final permit may be obtained by writing or calling EPA’s NPDES Industrial Permits Branch (CIP), Office of Ecosystem Protection, 1 Congress Street, Suite 1100, Boston, MA 02114-2023; Telephone: (617) 918-1579.

Comments submitted by the Cambridge DPW, the permittee:

Comment A1: Deadline for First Annual Report

The Draft Permit lists the deadline for the submission for Annual Reports as “By April 30th of each year” (§ I.D, emphasis original) but lists the initial annual report as due on April 15, 2010 (§ I.D.5.). As a matter of consistency and for ease of tracking deadlines, the City respectfully requests that all annual reports, including the first annual report, utilize an April 30 submission deadline.

Response to Comment A1: The commenter correctly notes this discrepancy. As intended, the initial annual report due date has been changed to April 30, 2010, to be consistent with the reporting date noted earlier in this section.

Comment A2: Deadline for Review and Update of Nine Minimum Control Program

The Draft Permit lists the deadline for the review and update of the nine minimum control program as no later than April 15th of the first year of the permit (§ I.B.). The City requests that the deadline for the review and update of the nine minimum controls be changed to April 30th of the first year of the permit to coincide with the deadline for the annual reports.

Response to Comment A2: In order to be consistent with the date required for the Annual Report submittal, the due date for the NMC program has been changed from April 15th to April 30th.

Comment A3: Notification and Reporting Requirements

Certain requirements set forth by the Draft Permit place notification and reporting responsibility largely on the City of Cambridge, whereas the Variances require joint action among Cambridge,

the Massachusetts Water Resource Authority (“MWRA”), the Boston Water and Sewer Commission (“BWSC”), and/or the City of Somerville.

Specifically, Draft Permit section I.C.6 states that “the permittee, with the collaboration of the MWRA and the City of Somerville, shall maintain informational signs at John Wald Park and other public access locations identified by the MassDEP, including the Community Sailing Program and local boathouses...” This requirement places the primary onus on the City of Cambridge to maintain the informational signs. However, the Variance for the Alewife Brook/Upper Mystic River states in section C.ii. that “MWRA and the Cities of Cambridge and Somerville shall maintain informational signs at John Wald Park and other public access locations identified by the Department...” and the Variance for the Lower Charles River/Charles Basin states in section C.ii that “MWRA, the City of Cambridge, and the Boston Water and Sewer Commission shall collaborate to provide informational notices to boathouses in the areas affected by the CSO discharges and the Community Sailing program...” Therefore, Cambridge requests that the language in the Draft Permit more closely track the collaborative process under the Variances by which the parties coordinate to ensure that the applicable requirements are met.

Section I.C.7 should be clarified at the outset that the press release only concerns outfalls located in the Alewife Brook/Upper Mystic River watershed. In addition, Draft Permit section I.C.7 states that “the permittee, with the collaboration of the MWRA and the City of Somerville, shall issue a joint press release by April 15 of each year,” which places the burden on the City to issue the joint press release. However, the Variance for the Alewife Brook/Upper Mystic River states that “MWRA and the Cities of Cambridge and Somerville shall issue a joint press release by April 15 of each year,” which distributes the responsibility of the press release more equally among the parties. Currently, MWRA takes the lead on such press releases and the City provides any comments on the press releases before they are issued. The City requests that the Draft Permit language be changed to more closely track the collaborative process under the Variance by which the parties coordinate to ensure that the applicable requirements are met.

Response to Comment A3: EPA agrees that the permit language should be consistent with the currently approved water quality standards variances to the extent possible. However, since this permit is only issued to the City of Cambridge, it can only direct the City of Cambridge and not the City of Somerville or the MWRA, to fulfill the permit requirements. In consideration of the variance language, the wording “in collaboration with the City of Somerville and the MWRA” was added for both requirements to reflect the fact that this is required to be a joint effort and that it is understood that the City of Cambridge does not bear the sole responsibility for either requirement. Therefore, the final permit has not been changed in this regard.

Comment A4: Replace all references to “CAM-002” with “CAM-002A & B.”

Outfall CAM-002, located proximate to the intersection of Alewife Brook Parkway and Massachusetts Avenue, is comprised of two pipes, which are labeled CAM-002A and CAM-002B.¹ The City requests the proposed change to the draft permit language to ensure that

¹ The 1993 Permit lists CAM-002A and CAM-002B as separate outfalls.

reference to CAM-002 contemplates the combined discharge from CAM-002A & B. During the course of floatable control design work and analysis at CAM002 the City proposed a revised design of the CAM002 regulator structure. In consultation with the MWRA, the City intends to implement an improvement to the CSO Control Plan that will slightly reduce the total volume of discharges from Outfall CAM-002 and significantly reduce the associated cost and impact of the construction work at the intersection of Massachusetts Avenue and the Alewife Brook Parkway. Currently, Outfall CAM-002B is blocked; however, to implement this improvement, it is necessary to unblock CAM-002B, thereby allowing use of both CAM-002A & B together to handle the flow from the regulator. The combined discharges from CAM-002A & B will not exceed the effluent limitations referenced for Outfall CAM-002 in Attachment B of the Draft Permit.

Response to Comment A4: To allow outfall CAM002B to be reopened in the future, it has been added to the permit as an authorized discharge. The discharge volume and activation frequency limits that apply to outfall CAM002 will now apply to the combined discharge from CAM002A and CAM002B. As described by the commenter, the addition of outfall CAM002B will not require a change in flow meter location because both outfalls receive flow from a single regulator and the installed flow meter measures the flow from the regulator before it is split between the two outfalls. Therefore, in permit Attachment A, Outfall CAM002 has been changed to CAM002A, and Outfall CAM002B has been added.

Comment A5: Section I.A.1.d of the Draft Permit should be corrected to state that the “permit discharges must meet Federal and State WQS subject to and consistent with any water quality standards variances or variance extensions issued by MassDEP and approved by the EPA.” The reasons for this change are that DEP issues the variance in the first instance, and compliance with the WQS is obviously subject to the provisions of the Variance.

Response to Comment A5: EPA has revised the final permit to reflect these language changes. Although it is redundant to add “issued by the MassDEP” regarding variances since only the MassDEP can issue variances in the state, this wording has been added for clarification.

Comment A6: Section I.C.3 of the Draft Permit, incorrectly refers to “Part 1.F. Unauthorized Discharges.” This reference should be edited to “Part 1.E. Unauthorized Discharges.”

Response to Comment A6: This discrepancy is acknowledged and the correction has been made to the final permit.

Comment A7: Attachment A to the Draft Permit that was mailed to the City of Cambridge is different than the Attachment A to the Draft Permit that is available online at EPA’s website. The Attachment A that was mailed to Cambridge is the correct version. The version that is posted on the website states in footnote # 3 that CAM-011 is scheduled to be closed, which is incorrect. Therefore, footnote # 3 should be removed. That same version also incorrectly

indicates in the chart that footnote # 2 refers to CAM-007 and CAM-009. It should tag CAM-009 and CAM-011 instead.

Response to Comment A7: EPA acknowledges that an incorrect version of Attachment A was originally posted on EPA's website at the start of the public comment period. Upon receiving this comment, the correct version of this permit Attachment was posted on EPA's website, replacing the incorrect version.

The following comments were submitted by the permittee on September 18, 2009, after the close of the comment period. EPA has determined that these issues should be addressed and has responded to them as follows:

Comment A8: In Part I.C. 4 of the permit, the City requests removing the bullet point requiring "a description of whether the discharge activation and volume for each CSO are in accordance with the MWRA Final CSO Facilities Plan or the "Notice of Project Change" document or updates to these documents. This section contains some ambiguity and may be interpreted to require the City to record the requested description for each discharge, as opposed to recording such information on an annual basis. From a technical standpoint, this requirement is more appropriately placed in the Annual Report section because requiring the requested description after each storm event is contrary to the regulatory basis for the numerical discharge limits in the permit and because the levels of control in MWRA's Final CSO Facilities plan are based on annual performance in a typical rainfall year. In addition, in practice, the MWRA and CSO communities have only been recording the requested information on an annual basis. Therefore, the requirement should remain in the Annual Report section of the permit, but should be removed from Part I.C.4.

Response to Comment A8: The intent of the requirements in Part I.C.4 is to have the City closely track the ongoing response of CSOs to storm events, both for the identification of any immediate operation and maintenance problems and to provide information for the annual report. The Agencies agree that the cited bullet point is ambiguous and replicates requirements for the annual report. Accordingly, we have removed the bullet point. We do encourage the City to closely review all ongoing CSO flow measurements to ensure that any increases in discharge activation frequency or volume due to operation and maintenance problems are quickly detected and corrected.

Comment A9: The City requests that a footnote be added to Attachments A and B to the column heading of "Effluent Limitations" stating that they are "Based on a Typical Year". Actual annual discharges from permitted CSO outfalls can vary from the Typical Year performance measures depending on the characteristics of storms in the Typical Year. Therefore, the proposed footnote would clarify the rainfall distribution used for the calculation of Effluent Limitations.

Response to Comment A9: Although Page 2 of the draft permit noted that the limits in permit Attachments A and B were based on the “typical year”, this has also been noted in footnote 1 to both of these attachments in the final permit.

Comment A10: Exhibits A and B to the March 15, 2006 Second Stipulation document (Attachment E in the draft permit) were amended on May 7, 2008. The amended versions of these Exhibits should be attached to the Stipulation and the Permit.

Response to Comment A10: Since the Second Stipulation document is a part of this permit on which some permit conditions are based, the Agencies have included the Stipulation with the revised versions of these exhibits in the final permit.

Comment A11: With respect to Part I.C.5, it is sufficient to solely list the City of Cambridge on the signs because adding the Department of Public Works (DPW) to the sign would make the text smaller and would not add any additional value to the sign. The existing warning signs posted by the City list the City’s name, but do not list the “DPW”. Therefore, the City should not be required to create new signs that include the “DPW”.

Response to Comment A11: The Agencies would accept signs that used the abbreviation DPW provided all other signage requirements were met.

Comments submitted by Michael A. Fager, on behalf of the Mystic River Watershed Association:

Comment B1: The permit acknowledges EPA’s statutory role in the review and approval of water quality standards variances. Part 1, A (1)(d). This is a change from the previous draft permit and the procedure adopted in 2006 in which EPA shifted review and approval functions to DEP for fifteen (15) years. MyRWA believes that federal review of state water quality variances is an important practical and legal element in achieving water quality gain in Alewife Brook. We assume this is EPA’s acknowledgement that the agency will review the DEP variances on a three year cycle.

Response to Comment B1: Although the previous draft permit may not have stated this, the EPA is obligated to and has routinely reviewed and approved MassDEP water quality variances, including the ones for the lower Charles River and Alewife Brook. As noted on page 10 of the fact sheet, EPA approved both of these variance extensions on July 29, 2008, as well as all prior variances for these waterbodies.

Comment B2: Information concerning physical conditions in the sewer system and water quality data about existing conditions and the impacts of CSO discharges into Alewife Brook is relevant to determining the appropriate level of CSO control. Cambridge is now responsible for

any additional CSO controls (see “Second Stipulation” document, 2006) should the water quality data support their implementation.

The Mystic River Watershed Association believes that Low Impact Development (LID) techniques and “green infrastructure” elements are practical alternatives for additional CSO control in the CAM 401B catchment area. Cambridge has already identified feasible LID techniques for the Alewife basin (see Proposed Concord Alewife Stormwater Guidelines, June 2006). Moreover, both §303 of the Clean Water Act and 40 CFR 131.11(d) (sic) require implementation of cost effective non-point source controls prior to the removal of a designated use.

Response to Comment B2: As noted in Part I.D.3 of the draft permit, the permittee is subject to the conditions of the 1997 Facilities Plan as well as the Second Stipulation, which updated the original court order regarding CSO discharge frequency and volume estimates among other items. The Second Stipulation requires that the MWRA must ensure that the abatement work is consistent with the “Facilities Plan”, but any future abatement will be the responsibility of the member communities.

Forty C.F.R. §131.10(d) provides that “{a}t as minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control.” This regulation does not require implementation of cost effective nonpoint controls before uses are removed, but rather precludes use removal if designated uses can be attained by achieving applicable technological limits and cost-effective and reasonable nonpoint source controls.

The MWRA has explored a number of alternatives and estimated that elimination of overflows would cost more than \$10 billion. The Commonwealth and EPA have concluded that an expenditure of this amount, and therefore elimination of overflows, is not feasible at this time. Thus full attainment of Class B uses is not currently achievable and the water quality standards have been adjusted temporarily via variances.

In any event, we would expect and encourage the City to consider LID and other techniques to the extent they could benefit the City, State, and the ratepayers by meeting the goals of CSO abatement work at lower cost, particularly if higher levels of CSO control are required in the future.

We also note that the City of Cambridge is authorized to discharge stormwater pursuant to EPA’s municipal separate storm sewer (MS4) general permit This permit includes best management practices (BMPs) which the City must implement to control stormwater discharges to waters of the State. EPA is currently developing a draft renewal of the MS4 permit, and it will likely result in communities increasing their use of LID techniques.

Comment B3: Part 1, C (6) states in pertinent part “The permittee, . . . shall maintain informational signs at John Wald Park and other public access locations . . . to advise the public of CSO discharges and potential public health impacts and provide contact information and website links.” The Department of Conservation and Recreation (DCR) is developing a new bike/pedestrian path along the Alewife Brook from the Minute Man Bike Path to the Mystic Valley Parkway. This path, for all areas relevant to this permit, will be in the town of Arlington, just across the brook from the CSOs. The permittee should be required to work with Arlington to install and maintain informational signs at appropriate locations along this path, at sites that should be stipulated in the permit.

Response to Comment B3: Regarding the placement of informational signs related to CSO discharges, Part I.C.6 of the permit reads “and other public access locations identified by the MassDEP.” Since the proposed bike path was not considered in the 2007 variance extension, it was not included as a specific area requiring CSO signage. MassDEP is committed to ensuring that signs are located at appropriate locations. The intention is to ensure that information is provided where the public has reasonable and legal access to areas potentially affected by CSO discharges. As submitted, however, the comment does not include sufficient detail with regard to the location where the commenter wishes to locate additional signs. MassDEP encourages the commenter to submit a detailed request with documentation to ensure that the MassDEP can identify the locations where commenter wishes to see signs located.

Comments submitted by Stephen Kaiser, Ph.D.:

Background to comments: Cambridge has complicated the sewer separation problem by its introduction of drainage improvements as a designed-in element of the total CSO program. Moreover, complete CSO separation along Alewife Brook has been dropped as an ultimate objective. Attachment B for the draft permit lists six existing CSO pipes under the jurisdiction of the City of Cambridge, and only two of these are proposed for closure as part of any near or long-term plan. It is fair to say that separation of additional Cambridge CSOs has been precluded for budgetary reasons, because of the considerable expense involved in the drainage program advocated by the City of Cambridge, called Contract 12.

One result of Contract 12 is to increase flooding in Alewife Brook, and with the increased flooding comes greater amounts of inflow into the local and MWRA sewer systems during high water conditions. In effect, there is reverse flow from the brook into the CSO chambers and thence into the MWRA interceptors. The CSO problem at Alewife is two-way. First there are the flows of combined sewage from the Cambridge system discharged into Alewife Brook. Second, there is the reverse flow or inflow of floodwaters from the brook passing into the Alewife interceptors and overloading the MWRA system downstream, causing the sanitary sewer overflow (SSO) near Dilboy Field. During both the October 2005 and March 2006 floods (ten year events) I observed overland SSO flows coming from the rear of the MWRA Alewife Brook Pump Station near Dilboy Field. I saw significant deposition of solid fecal matter on the ground. My measurements of Alewife Brook flood elevations during those storms showed that

flood crests were well above the weir elevations within Cambridge's CSO structures. I concluded that brook inflow into those CSO facilities was a significant contributing factor to the SSO overflows experiences at MWRA near Dilboy Field.

One consequence of Cambridge's Contract 12 drainage work is heightened flood elevations in Alewife Brook. The City's own flood studies for the 2001 NPC and 2003 Variance Request show identical analyzes of increased flood elevations along Alewife Brook, with elevations in a 10-year storm being 1.5 inches higher near the MWR003 outfall on Little River (Table ES-4 on page ES-12). No 100-year flood impact was calculated by Cambridge or MWRA.

This increased flooding along Alewife Brook caused by Cambridge's drainage project will increase the physical extent of the flooding as well as the water depth for those properties within the flood plain. More importantly for water quality, it allows even more inflow of brook water through the CSO system and into the MWRA interceptors, triggering even larger SSO discharges near Dilboy Field. MWRA has proposed and supported the concept of installing flap gates on all remaining CSO pipes from Cambridge. Cambridge has indicated its preference for funding the drainage project rather than inflow controls.

Other elements of the CSO separation in Cambridge work both ways as well. The plans shown in the NPC indicate larger connection pipes between Cambridge's CSO system and the MWRA interceptor. This provision allows for less CSO overflow during shorter, more intense flows, but also produces larger volumes of inflow from the brook into the MWRA system. Again, flap gates would reduce this problem, but they are not an approved element in the current CSO plan.

Finally, there is a scarcity of quality measurements of flood elevations along Alewife Brook. No government entity has reported any flood data since 1996. Water quality sampling and modeling have also been deficient in either frequency or accuracy or both.

From the problem assessment above for Alewife Brook, there are four basic elements in the current plan that need to be addressed by planners, engineering designers and permitting agencies:

Comment C1: There is no plan at any time in the future for the full separation of combined sewers in Cambridge.

Response to Comment C1: As part of the ongoing enforcement action to restore Boston Harbor, the MWRA has been required to implement a CSO mitigation plan that weighed numerous alternatives. For various reasons, including concerns about flooding and cost, the alternative selected for Alewife Brook does not require full sewer separation. This permit requires the continued implementation of the NMCs and the conditions also reflect the ongoing separation and abatement work as required by the Court Order and the variance.

Affordability has been an important consideration in evaluation of CSO control alternatives, as is the cost-effectiveness of any control plan. However, as documented in past Assessment Reports,

elimination of all CSO discharges through sewer separation has serious technical feasibility challenges in addition to affordability concerns. Although full separation is not a current requirement, the frequency and volume of CSO discharges to Alewife Brook are expected to decrease significantly upon completion of CSO abatement and related work. Also see the response to Comment B2.

Comment C2: The drainage plan proposed by Cambridge will worsen flooding conditions generally in Alewife Brook, and will increase brook inflow into MWRA interceptor sewers during major storms, with SSO problems worsened downstream. Cambridge has adopted no mitigation plan.

Response to Comment C2: The selected alternative for CSO control attempted to strike a cost-effective balance between increased flooding and additional separation. As noted in the permit, SSOs are prohibited. Any discharge of SSOs shall be reported as required in Part I.E of the permit.

The Cambridge CSO permit does not address flood management issues in the watershed. It limits and establishes conditions for allowable CSOs. Commenters concerned about flooding should refer inquiries to the Federal Emergency Management Agency (FEMA) and the DCR Flood Hazard Mitigation Program.

FEMA has recently evaluated the flood plain mapping in the area and determined that flood plain elevation should be reduced from 8.2 feet to 7.6 feet based on data showing that the extent of flooding is greater than previously thought. The new study modeled the Alewife Brook as part of the larger Mystic River system and used an unsteady flow analysis, taking into account the timing of when the various tributaries discharge to the Mystic, which captured backwater flooding on the tributaries to a greater degree than an older study conducted in 1982. There are plans to adopt these revised flood maps in June 2010.

As to flood impacts, the City has indicated in its planning document that the drainage project will not result in any increase in flooding in the watershed, and that peak pre- and post- construction runoff rates will be the same. The project has been duly permitted by MassDEP under the Wetlands Protection Act.

Comment C3: The failure to install flap gates on all remaining CSO pipes in Cambridge will result in no reduction in the brook flood inflow through CSO structures into MWRA interceptor sewers. Such flap gates are needed.

Response to Comment C3: The permit requires the City to annually report on measures that it is taking to comply with the continued implementation of the NMCs, which are subject to approval by MassDEP and EPA. In response to this comment, and following review of the MWRA CSO planning documents supporting the recommended plan, Part I.D.5 of the final

permit has been modified to incorporate a requirement to assess the potential for river inflow into the Cambridge combined sewer system in the Alewife Brook watershed and to assess the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO facilities. This information will be required in the second annual NMC report and could establish a solid basis for requiring inflow controls in the future.

Comment C4: There is inadequate data and circulated information on the interaction between flooding and sewer overflows (both CSO and SSO). More measurements with greater accuracy need to be made.

Response to Comment C4: As discussed above, the permit has been amended to require the City of Cambridge to assess the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO facilities. This analysis will require additional monitoring to evaluate the relationship between flooding and downstream overflows.

Comment C5: The proposed permit provides a sound structure for which to build an effective permit. Among the nine Minimum controls, the permit emphasizes five : #1,5, 6, 8, and 9. I would urge that EPA add #2 and #4 :

“(2) Maximum use of the collection system for storage.
(4) Maximization of flow to the POTW for treatment.”

Both of these are related to the use of flap gates on all remaining CSOs to reduce the amount of brook inflow into the MWRA system. The goal would be to maximize both the storage of existing system as well as maximizing the available capacity in the MWRA system to allow for sewage flow to the Deer Island treatment plant.

Response to Comment 5: See response to Comment C3.

Comment C6: “(9) Monitoring to effectively characterize CSO and the efficacy of CSO controls.” Proper monitoring should include information both on flooding/rainfall and CSO activity (both discharge and inflow). Cambridge must calibrate and report regularly on data from their two existing stream monitors. The USGS at Broadway gage has been down for over two years, with no data on stream elevation. Cambridge has simply not been reporting their flood data publicly.

Response to Comment C6: The reporting requirements contained in the draft permit contain sufficient detail to determine compliance with the permit and progress on implementing CSO controls. Additional monitoring can be required through future mechanisms if additional data is needed for future decisions.

The permit requires Cambridge to quantify the frequency and volume of all CSO events, as well as to provide information on precipitation. The Agencies are not aware that Cambridge operates and maintains any “stream monitors.” USGS continues to operate and maintain a stream gauge

on Alewife Brook near Arlington, data from which is available in real-time on line. The Mystic River Watershed Association appears to operate a seasonal instream monitor on Alewife Brook.

Comment C7: Other problems arise from the peculiar nature of the permit, which establishes limits on the amount of storm discharge, but has no penalty structure and no method of enforcement. There does not appear to be any opportunity for peer review of any measurements, modeling or calculations to be performed by the City of Cambridge. My concerns about this element of the permit are probably not peculiar to this permit, but are related to all NPDES permits. However, I would be most interested in seeing how Cambridge measures and evaluates flood events.

Response to Comment C7 All of the permit requirements are fully enforceable elements of this permit. If EPA and/or MassDEP determine that the City is not meeting any of these permit requirements, a variety of enforcement actions, including monetary penalties, may be commenced. The permit's terms and conditions are also enforceable by citizens pursuant to the Clean Water Act's citizen suit provision at § 505, 33 U.S.C. § 1365. All information relative to CSO volume and activation frequency as well as CSO inspection reports are public records and available for viewing at any time during normal business hours. Full public review of the MWRA CSO control plan, including data developed during modeling of alternatives, was conducted as an element of the MEPA process.

Comment C8: With respect to "effluent limitations and requirements," there should be greater clarity as to how the limitations affect actual water quality. The lack of opportunity for enforcement action needs to be explained.

Response to Comment C8: This section of the permit outlines the NMCs and references the documents which set limits for CSO activation frequency and volume for all remaining CSO discharges. Non-compliance with any of these conditions or limitations could be subject to enforcement. The permit's effluent limitations are consistent with the variance, which requires reductions in CSO volumes discharged which will lead to improved water quality.

There is a great deal of variability in storm events and their impacts on water quality. Clearly overflows degrade water quality, and larger volumes tend to have a greater impact. The permit's effluent limitations protect water quality by limiting the volume and frequency of overflows.

Comment C9: The interactions between rainfall, stormwater, flooding and sewage overflows can be quite complicated. Unfortunately, those who deal with flooding (FEMA) are separate agencies from those that deal with water quality (EPA). Closer coordination is needed. For example, a storm should be evaluated for some reasonable period after the end of rainfall, at least as long as inflow through CSOs remains a problem. During the March 21 to April 2, 2004 flood (a ten-year event), Alewife Brook crested at elevation 5.6 NGVD -- two feet higher than the lowest CSO invert. The brook level did not drop below the CSO invert level for 36 hours. Thus the definition of wet weather as contained in the permit :

"1. During wet weather, the permittee is authorized to discharge combined storm water and sanitary wastewater from combined sewer outfalls"

should be modified to cover this additional inflow period.

Response to Comment C9: Section 402(q) of the Clean Water Act, 33 U.S.C. § 1342(q), requires permits to conform to the CSO policy. The Region interprets the CSO policy as allowing CSO discharges that result from stormwater inflow that combined collection systems are designed to receive. CSO discharges that result from excessive infiltration or inflow from ground water or surface waters are not authorized by the permit and it would be inconsistent with the CSO policy to authorize such overflows.

The "invert" of the CSO outfall will not dictate whether an inflow from the Brook occurs; rather it is the height of the upstream CSO weir or regulator, which is always significantly higher than the invert. Flap gates may be warranted if Brook elevations become higher than the weir elevation. Even under this condition, however, whether inflow occurs will depend on the hydraulic grade line in the sewer versus the river elevation.

Comment C10: In terms of submitting valid data, the following is acceptable:

" 4. When estimating, the permittee shall make reasonable efforts (i.e. gaging, measurements) to verify the validity of the estimation technique. " except that the term "calibration" should be used to validate any measurements or estimation methods. In terms of actual measurements for flood elevation, it is my understanding that Cambridge maintains two in-stream meters from which elevation data can be utilized. Calibration of the base or reference elevation of the gage should be included in any report to EPA.

Response to Comment C10: EPA agrees that acceptable calibration measures should be taken regarding the measurement of flow and this wording has been added to the final permit.

Comment C11: Reports on precipitation should include peak hourly precipitation as well as total storm precipitation (with times for storm beginning and end). Notation should be made of recent rains in the week prior to the flood crest and the presence of surface snow or ice. Such conditions represent the classic winter freshet situation of rains striking melting snow or frozen ground conditions. Historically, Boston's worst winter freshet occurred in 1886 Stony Brook Flood, while a significant 25-year flood in March 2001 was created by a one-year rainfall striking snow and frozen ground.

Response to Comment C11: The Agencies believe the permit language is satisfactory in that it requires cumulative data for each day, and hourly data (presumably peak hour intensity) where such information is available from the national weather service. In addition, annual reporting for

years 3 and 5 on system performance must describe any features of discrete storm events which caused atypical CSO discharges. Also see Response to Comment C6.

Comment C12: The draft permit stipulates that if CSO discharges are significantly higher than expected, Cambridge shall include a discussion of possible abatement activities and their possible impact:

"Where CSO discharges are determined to be greater than the activation frequency or volume in either document above, the permittee shall include their assessment of such result, a discussion of remaining CSO abatement activities and an assessment of the impact of those projects on attaining the level of CSO control identified"

One key mitigation element which should be considered is the dredging of Alewife Brook. Existing sediments are about four feet deep, with 18 inches of water depth in the brook itself. Removal of these sediments would result in better stream flow and hence a flooding benefit, while also removing pollutant-laden materials within the brook. The flooding benefit can be utilized as mitigation for the worsened flooding attributed to Contract 12, as well as any needed flooding mitigation due to flap gates. The flap gates would have the effect of reducing flood water in the MWRA interceptors, but with an increment of increased flooding in the brook itself. In this scenario, flap gates can be used to reduce inflow, and full flood mitigation is provided by the dredging. I have made this proposal and submitted it twice to MWRA.

Response to Comment C12: The Region agrees that if further mitigation efforts are required, it would make sense to consider all reasonable alternatives. There is no reason that dredging should not be among alternatives considered. Also, See Response to Comment C3.

Comment C13: I believe that it should be possible to utilize the NPDES permit to encourage the various parties concerned with water quality and flooding issues along Alewife Brook to reach a reasonable resolution with mitigation. I welcome any effort that EPA can give to this effort.

Response to Comment C13: The Permit itself is not a vehicle to address flooding mitigation. Our regulatory authority for this permit is limited to the impact that flooding has on the discharge of pollutants or to the inflow of flood waters into the sewer system. However, the Agencies would be willing to participate in a discussion regarding all aspects of flooding.

Comment C14: While I did request the opportunity for a public hearing and extension of the comment period, I believe that with the upcoming NPDES review of MWRA permits in the Alewife Brook/Mystic River area will include a public hearing. By completing these comments, I have no further need for time to respond to the draft permit for Cambridge. Therefore, I withdraw my request for a hearing and extended public comment period for Cambridge permit MA0101074.

Response to Comment C14: EPA acknowledges the withdrawal of your hearing request and no hearing regarding this draft permit will be conducted.

Comments submitted by Roger Frymire:

Comment D1: Part I. A. 9

CSO monitoring guidelines call for characterization as well as flow monitoring. MWRA issued the 1993 Interim CSO Report for the CSO plan FEIR. This characterized only 10 CSOs in the entire MWRA area from 4 samples at each CSO in two rain events. I believe none of those characterized were in Cambridge. Half the CSOs were quite dirty with Fecal Coliform concentrations well over 500,000 CFU/100ml. But half the CSOs were unexpectedly clean - for example SOM003 had only one sample from each storm over 10,000 CFU/100ml, with medians of 4,500 and 8,000 for the two storms (means were 37,000 and 22,000). Once the LTCP is completed in Cambridge, good data from the remaining CSOs will be needed to decide if and where any further CSO separation will be required in Cambridge.

I request that in Year one of this permit Cambridge be required to develop a sampling plan to characterize flows for E. coli and phosphorous from each CSO listed in Attachments A and B as having over 400,000 gallons/year typical flow or more than two activations expected in a typical year. These would be CSOs numbered 001, 002, 005, 017, 401A, and 401B. I don't expect all outfalls to be characterized each year, and a pace of one outfall well-characterized each year would soon generate meaningful data.

I stress that I do not expect a plan involving construction of specialized chambers near each overflow and installation of complex automated sampling gear at great cost. Rather a minimal plan for grabbing an occasional sample by pole either at the overflow weir, CSO outfall, or even a manhole slightly upstream of a weir at a point in a storm where modeling and experience has shown CSO activations to be likely. The MWRA Report actually failed to collect a large number of its samples when the CSO was actually activated, and relied on many samples taken from the upstream side of a CSO weir when it wasn't even overflowing! I'm sure Cambridge can do better than that! I also accept that there may be one or two CSOs which for various reasons cannot be feasibly characterized at a reasonable level of expenditure.

Response to Comment D1: The Agencies have found that CSO quality has varied dramatically in sampling programs (even multiple samples at the same CSO), and the litany of factors affecting CSO quality makes it difficult to draw conclusions on which factors bear more impact. Therefore, most of our CSO decisions have been based on quantity/frequency and receiving water uses, which we believe are better criteria. The Agencies are not opposed to requiring more characterization sampling in the Upper Mystic/Alewife basin, but feel it should be done in successive issuances of the Variance once the recommended plan is in place. It will be challenging to determine how the sampling data will and should influence decisions to move forward with further separation work.

Comment D2: Part I. C. 5

Though black on white instead of white on green, current CSO signage installed under the Variance requirements should be acceptable until they wear out.

Response to Comment D2: The Agencies agree that current signage that otherwise meets the signage requirements is acceptable and would expect that signs with the required green and white color scheme would be installed when the current signs need to be replaced.

Comment D3: Part I. C. 6

With a new pedestrian path and Bikeway connector between the Minuteman and Mystic River paths being installed alongside Alewife Brook, there is need for additional informational signposts to inform the increased public being brought into close proximity to the Brook. The Mouth of the Brook near each end of the Mystic Valley Parkway bridge is one good site. The other good site is near the Mass Ave Bridge over Alewife Brook. Both these are major pedestrian and bicycle connections to the new public pathways. Of course, DCR approval as property owner for siting such signage would be needed.

Response to Comment D3: See response to Comment B3.

Comment D4: Part I. C. 8

In the Alewife area, public notification of CSO events via e-mail is working well and is much appreciated. A similar notification seems appropriate for the Charles even if also triggered by the CAM401B activations on Alewife. CAM005 is permitted to activate three times annually, but the Cottage Farm facility is only supposed to activate twice a year so the notifications based there will miss a third of all untreated CSO activations. It may be that a BWSC Charles River CSO activates more frequently and would be an even more appropriate notification trigger, but that is not covered under this permit.

Response to Comment D4: MWRA is required to provide such notice upon activation of Cottage Farm. Once the MWRA Charles River CSO plan is implemented (in July 2013), CAM 005 will be the most active overflow predicted, but until then, Cottage Farm will remain the most active overflow point, and suitable for the real-time notice. For the next permit issuance, EPA and MassDEP may require that Cambridge report activations for Outfall CAM 005.

Comment D5: Part I. C. 9

Cambridge DPW website updates of CSO activation information were neglected for the last 5 years. Though webpage updates should not be expected instantaneously, I would like to see a 45-day deadline after each CSO event for updates to become publicly available via web.

Response to Comment D5: The Region agrees that regular website postings of CSO activations would be valuable and encourages the City to provide up-to-date information on its web-site as soon as it is practicable to do so.

Comment D6: Part I. D. 4

This report should be required in year three and EVERY 2 years thereafter, with no lapse if permit renewal goes beyond 5 years. I especially like the 'recurrence interval' reporting for each storm with an activation. This will lead to a much greater understanding of the CSO dynamics with varying storm size.

Response to Comment D6: EPA agrees with the comment and has changed the permit accordingly.

Comment D7: Attachment A

CAM011 needs footnote 2 added to annual activation frequency.
CAM007 does NOT need footnote 2.

Response to Comment D7: See response to Comment A7.

Comment D8: Attachment B

CAM002 has a second outlet point currently bricked closed (CAM002B). Cambridge may request to re-open this outlet as their modeling shows this would result in LESS effluent in a typical year as well as providing hydraulic relief from basement and street backups to residential neighborhoods in extreme (>1yr) storms. This likelihood should be noted for the final permit, and I fully support it.

Response to Comment D8: See response to Comment A4.

Comment D9: CAM401A has an innovative rotating brush/weir for floatables control which makes metering flows here exceptionally tricky. Cambridge should be allowed to use innovative substitutes for direct metering including detailed modeling linked to a local rain gauge and well-calibrated to available metering data.

Response to Comment D9: To the extent that the City can show that innovative metering techniques are adequate alternatives that meet the permit requirement, they can certainly do so. In Part I.C.4 of the permit, the permittee is allowed to use estimation as a method of CSO discharge volume quantification and is required to "make all reasonable efforts to verify the validity of the estimation technique".

Comment D10: Reporting

Wherever possible I would like to relieve the city of multiple reporting requirements by fully integrating report schedules required by this permit, two Variances, and DEPs ACOP and NON requirements. Integration of reporting also assists in understanding the interplay between scheduling these multiple complex projects.

Response to Comment D10: To the extent that any of EPA or MassDEP's reporting requirements are duplicative, we would encourage the City to request that the submittal of reports or monitoring data or their incorporation by reference from other programs or requirements be used in satisfying the conditions of this permit.

Comment D11: Low Impact Development, Green Roofs

Cambridge has made a good start by writing LID into zoning for one part of the city. I would like to see LID and green roofs required or at least encouraged citywide. In combined sewer areas, this could help reduce flows and eventually allow closure of more CSOs. In separated areas, this will help meet phosphorous TMDL stormwater regulations.

Response to Comment D11: See response to Comment B2.

Comments submitted by David Stoff:

Comment E1: I am pleased to see that the permit acknowledges EPA's statutory role in the review and approval of water quality standards variances (Part I (A)(d)). In a permit where the effluent limitation is effectively determined by the water quality standard, more-not less-scrutiny of state water quality standards is warranted. Hopefully, the new permit is a change from the draft permit issued in 2005, and from EPA's approval of a multi-year water quality variance in 2006, which purported to shift regulatory responsibility to MassDEP for 15 years.

Response to Comment E1: See response to Comment B1.

Comment E2: Low Impact Development techniques and "green infrastructure" elements are practical alternatives for additional CSO control, particularly in the CAM 401B catchment area. Cambridge has already identified feasible LID techniques for the Alewife basin (See, *Proposed Concord Alewife Stormwater Guidelines*, June 2006); moreover both CWA sec. 303 and 40CFR 131.11(d) require implementation of cost effective non-point source controls prior to the removal of a designated use. I see no reason why the Annual Report, Part I (D)(4)(c), should not include a requirement for an analysis of LID techniques in addition to designs identified in the NPC, where "... CSO discharges are determined to be greater than the activation frequency [in the NPC]" and the permittee is required to make "an assessment of the impact of those projects on attaining the level of CSO control."

Response to Comment E2: See response to Comment B2.

Comment E3: Part I(C)(6) of the permit states that the permittee shall "maintain informational signs at John Wald Park and other public access locations." Since the Massachusetts Department of Conservation and Recreation ("DCR") Alewife-Mystic Bicycle path will provide additional

public access points along the Alewife Brook during the term of the permit the signage requirement should be altered accordingly. Language such as "...John Wald Park and DCR access points" should be adopted to offer meaningful notification to the public as required by NMC8.

Response to Comment E3: See response to Comment B3.

Comment E4: Part I(C)(6) of the permit states a press release shall be provided to "... property owners in Cambridge subject to flooding in the Alewife Brook watershed." Attachment D, Part C, iii [the MADEP Variance] states that the press release shall be provided to "property owners subject to flooding in the Alewife Brook watershed"(emphasis added). Effective public notice of CSO impacts and locations must be provided to ALL persons in the Alewife sub-watershed regardless of what community they reside in. The permit should adopt the MADEP condition, which is legally enforceable according to the permit, and drop the word "Cambridge."

Response to Comment E4: EPA agrees that this permit should be consistent with the current variance in this regard. Therefore, Part I.C.7 (not I.C.6) of the final permit has been revised to remove the word Cambridge, which would require the distribution of such press release to all property owners that are subject to flooding, including those in Arlington and other communities.

Comment E5: DCR has completed a comprehensive clean-up of the Alewife Brook channel. This has resulted in the elimination of the debris which formerly trapped sewage related floatables. Part I(C)(1)[routine maintenance and inspection] should include language such as "where an outfall is blocked by debris the permittee shall report the location and extent of the blockage to the Department of Conservation and Recreation' to avoid a re-occurrence of the unsanitary conditions that formerly existed in the Alewife Brook channel.

Response to Comment E5: EPA agrees that debris in and around a CSO outfall structure could affect its operation and we are pleased to see that DCR has cleaned up such debris. It is not burdensome for the City to forward to DCR any report that identifies conditions within the control of DCR that could affect its operation. Therefore, the permit has been changed accordingly.

Comment E6: The following comment incorporates by reference arguments presented by the commenter to EPA in the May 15, 2008, *Notice of Intent to Sue*, on file.

Section 402(q) of the Clean Water Act requires that "each permit, order, or decree" for CSO discharges "shall conform" to the *Combined Sewer Overflow Control Policy* ("*CSO Policy*") signed by the Administrator [of EPA] on April 11, 1994. The Draft Permit is a "permit" as that term is used in CWA sec. 402(q).

The *CSO Policy* contains duties that are enforceable pursuant to CWA sec. 402(q). For example the requirement for a long-term control plan. (See, *CSO Policy*, Part II(C). The *CSO Policy*

stipulates that where the CSO discharges remaining after the implementation of the long-term control plan cannot meet water quality standards due to non-CSO pollution sources [the situation detailed in the Notice of Project Change for the Alewife Brook] a “total maximum daily load” should be used to “apportion” pollutant loads. (See, *CSO Policy*, Part II(C)(4)(b)(ii)).

Because a long-term CSO control plan is a non-discretionary requirement of the *CSO Policy* and the LTCP “must comply with sections 301(b)(1)(c) and 402(a) of the CWA,” in a situation where the LTCP relies on a modification of a state water quality standard, the establishment of a TMDL must coincide with the implementation of the LTCP. Were it otherwise, the NPDES permit to violate CWA sec. 402(a)(1) which conditions authorization of the permit on compliance with CWA sec. 301.² Since Massachusetts has failed to implement a TMDL for pollutants identified the LTCP and subsequent documents, EPA has a duty to act to establish daily loads pursuant to CWA 303(c).

Response to Comment E6: Part II(C)(4)(b)(ii) of EPA’s April 19, 1994 *Combined Sewer Overflow Control Policy* (“*CSO Policy*”) includes a statement that refers to the development of total maximum daily loads (“TMDL”) where water quality standards and uses are not met due in part to natural conditions or sources other than CSOs. In such a circumstance, “a total maximum daily load, including a wasteload allocation and a load allocation, or other means should be used to apportion pollutant loads.” 59 Fed. Reg. 18688, 18693 (April 19, 1994). It is unambiguously clear from reading the entire CSO policy, as well as several EPA CSO guidance documents, that this language merely encourages, but does not require, the development of a TMDL where it appears that WQS will not be attained once the LTCP is implemented due in part to other sources. See, e.g., *Combined Sewer Overflows Guidance For Permit Writers* (EPA 832-B-95-008) (August 1995), at pp. 3-24, 3-26, 5-3, 5-4; *Combined Sewer Overflows: Guidance for Long Term Control Plans* (EPA 83-B-95-002) (September 1995) at 1-15, 1-17, 1-19, 3-6; *Guidance: Coordinating Combined Sewer Overflow (CSO) Long-Term Planning with Water Quality Standards Reviews* (EPA-833-R-01-002)(July 2001) at pp. 51-55. States are responsible for the development of TMDLs, and they have the authority to establish priorities for TMDL development for the waters they have identified as impaired by pollutants. See CWA §303(d) and 40 C.F.R. §130.7. Nothing in EPA’s CSO policy or CWA § 402(q) supplants the states’ discretion in establishing priorities for TMDL development, nor do they preclude EPA from issuing a permit for CSO discharges in the absence of a TMDL. Because the final permit contains conditions necessary to achieve water quality standards, as modified by applicable variances, the permit complies with the statute.

Alewife Brook has been identified by the State as a receiving water which is not achieving water quality criteria for pathogens (among other pollutants), and is among over 1000 water body

² See, 40 C.F.R. § 122.44(d)(1)(vii)(B) (requiring permitting authority to set effluent limits “consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA...”). See also, *Friends of Earth, Inc. v. E.P.A.*, 446 F.3d 140,144 (D.C. Cir., 2006)(Holding that “the word ‘daily’ means daily” in a TMDL; and describing how such daily loads must be incorporated into permits pursuant to CWA 301(b)(1)(C)).

segments in Massachusetts for which TMDLs must be produced. According to the State's most recent water priorities report, MassDEP hopes to complete pathogen TMDLs for the Boston Harbor watershed (which includes Alewife Brook) in 2010. See The Environmental Progress Report FY 2010: Surface & Groundwater, pp. 77-78, 81, at <http://www.mass.gov/dep/water/priorities/sw2010.doc>. The water quality information developed for the CSO planning effort, and the continuing sampling programs by the MWRA and the Mystic River Watershed Association, will be helpful in identifying and confirming pollutant sources and pollutant loads in the watershed, and will be important in developing a TMDL. Clearly, control of both CSO and non-CSO sources will be critical to achieving improved water quality in the Alewife Brook watershed. Future permits will be consistent with any applicable TMDL that is developed and approved.

September 30, 2009

