Response to Public Comments

From May 8, 2003 to June 11, 2003, the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) solicited Public Comments on draft NPDES permits, MA0101974 and MA0101982, developed pursuant to applications from the Cities of Cambridge, Massachusetts and Somerville, Massachusetts, respectively, for the reissuance of permits to discharge from combined sewer overflows (CSO) to the Alewife Brook, the Charles River and the Upper Mystic River. A public hearing was held on June 11, 2003 in Cambridge and all comments made and received at the hearing were entered into the permit record. At the conclusion of this public hearing, EPA and MADEP extended the public comment period through July 2, 2003.

After a review of the comments received, the EPA has made a final decision to issue these permits authorizing these discharges. The following response to comments describes the changes that have been made to these permits from the drafts and the reasons for these changes and briefly describes and responds to the comments on the draft permits during the public comment period. Copies of the final permits may be obtained by writing or calling EPA's Office of Ecosystem Protection, Municipal Permits Branch (CMP), 1 Congress Street, Suite 1100, Boston, MA 02114-2023; Telephone: (617) 918-1579.

Update: Extension of variances for CSO discharges

CSOs discharging to the Lower Charles River were previously granted a variance under the Massachusetts Water Quality Standards which expired October 1, 2004. This variance has been extended through October 1, 2007, by MADEP's letter of October 1, 2004. A copy of this determination letter for the variance extension is included as **Attachment D** of the final Cambridge CSO permit and a fact sheet accompanying this variance extension is included as **Attachment E** of the final Cambridge CSO permit.

CSOs discharging to the Upper Mystic River/Alewife Brook were previously granted a variance under the Massachusetts Water Quality Standards which expired on September 1, 2004. This variance has been extended through September 1, 2007, by MADEP's letter of September 1, 2004. A copy of this determination letter for this variance extension is included as **Attachment F** of the final Cambridge CSO permit and a fact sheet accompanying this variance extension is included as **Attachment G** of the final Cambridge CSO permit. In the Somerville CSO permit, the Upper Mystic River/Alewife Brook determination and fact sheet are designated as **Attachments B** and **C**.

EPA approved both of these variances on September 15, 2005 by letter, which is shown in Attachment 1 of this response.

Changes to the final permit from the draft permit:

Both of these final permits have been changed from their drafts to reflect the variance extensions for the Lower Charles River and Alewife Brook/Upper Mystic River. EPA approved both of these variances on September 15, 2005. These permitted discharges must meet Federal and State water quality standards and be consistent with any water quality standards variances or variance extensions approved by the EPA. These changes are discussed on Page 6 of both final permits. In addition, some of the CSO activation frequency and discharge volume figures have been revised as shown in **Attachments B** and **C** for the Cambridge permit and **Attachment A** for the Somerville permit. These changes reflect revised figures from the documents entitled, "Final Variance Report for Alewife Brook and the Upper Mystic River," July, 2003 and "Cottage Farm CSO Facility Assessment Report," January 2004.

These changes have been determined not to be significant, therefore, EPA has decided that these changes do not warrant an additional public noticing of these draft permits.

Comments #1, #2 and #3 are composites of comments submitted by various parties:

Comment #1: I live in the flood plain in the City of Arlington. I was never informed of the serious health risks associated with CSO discharges. The sewage can carry pathogens which can cause disease, such as hepatitis and gastrointestinal disorders. Neither the cities of Cambridge and Somerville nor the MWRA has been able to provide basic information about CSO discharges. Residents living in the flood plain in Arlington should be mailed annual notices that sewage is discharged with flood waters as well as with CSO activation frequency and volume amounts. They should also be provided with information on proper cleaning techniques regarding flood waters containing CSOs. All CSO discharges to Alewife Brook should be eliminated.

Response: EPA and DEP understand that areas along the Alewife Brook flood occasionally and that these waters may contain CSO discharges. CSO discharges contain pathogenic organisms, and so pose human health issues if contacted. Neither EPA or MADEP have regulatory authority to require flood control projects, and cannot impose conditions in NPDES permit to control flooding. The MWRA is required, pursuant to the State's Wetlands Protection Act (M.G.L. c.140, s.40) to ensure that the recommended plan does not exacerbate the existing flooding. The MWRA along with the cities of Cambridge and Somerville are moving forward with $74 million in CSO abatement projects which will mitigate CSO discharges and their impacts. At the close of the CSO Variance, which has recently been extended to September 1, 2007, based on MWRA's Final CSO Reassessment Report, DEP and EPA will render a determination on the feasibility of eliminating CSO discharges in this watershed, after opportunity for public and agency review of this document.

EPA and DEP are required to establish permit conditions which will ensure that the discharge of pollutants from the discharges do not cause exceedances of water quality standards. In accordance with those requirements, EPA and DEP have established the permit limits for CSOs to the Alewife Brook and other water bodies in accordance with water quality standards. The current standards for the Alewife Brook have been included in the water quality variance. The ultimate water quality standard for CSOs will be determined during the current variance extension, and incorporated into Massachusetts Water Quality Standards through a public participation process. The requirements of the final standard will then be incorporated into the permit.

Care should be taken under any conditions where exposure to floodwaters or sewer backups is possible. DEP has recently collaborated with the MA Department of Public Health (DPH) and the MA Department of Conservation and Recreation (DCR) to develop a guidance document for cleaning up after flooding and sewer backup incidents. This guidance has been disseminated to community officials in the Alewife watershed and to the Mystic River Watershed Association among others. In addition to the CSO mitigation efforts that are ongoing, there are also local efforts to address flooding in all affected communities and we would encourage participation by these residents in these efforts.

MWRA and its member communities (MCs) Cambridge and Somerville have provided ongoing public notification as part of their nine minimum control (NMC) programs. These efforts have included CSO outfall signage, submittal of discharge monitoring reports, publishing and including water quality information on their websites and annual reports from sampling programs, and publishing a CSO newsletter during the CSO planning process. In addition, as a requirement of the CSO Variance, MWRA and its MCs submitted workplans associated with the water quality variances to address among other things, public notification regarding CSO discharges. These workplans were reviewed by the agencies and approved by the DEP with its letter of April 2, 2003, subject to amendments and provisions within that letter. Among the conditions of the latest variance extension is that MWRA and the cities of Cambridge and Somerville are to issue a joint press release by April 15 each year to watershed advocacy groups, local health agents, individual homeowners within the FEMA A-numbered Zones, and newspapers of local circulation in the Alewife Brook/Upper Mystic River watershed, which shall include general information on CSOs, their locations in the Alewife Brook/Upper Mystic River watershed, and potential health risks posed by exposure to CSO events. This variance condition, as well as the other variance conditions, are enforceable elements of the NPDES permit.

CSO elimination and attainment of the Class B standard remain the goal for Alewife Brook. As noted, $74 million in CSO abatement work is proceeding. CSO elimination and full attainment of the Class B standard is required unless MWRA can document that one of the criteria in DEP's surface water quality standards at 314 CMR 4.03(4) has been met, which is necessary to support any change to the standard. This process of the standards review, and any proposed standards modification includes provisions for public input, and any interested parties are encouraged to participate in this process.

Comment #2: The draft permit proposes to permanently shift a public health risk onto our community solely for the financial benefit of the CSO permit holders.

Response: A series of CSO Variances were established, in part, because of high costs of CSO abatement over the entire MWRA service area, and the impacts of that cost on MWRA rate payers. The MWRA Board has decided to apportion CSO abatement costs across the entire service area, so CSO abatement costs are borne by all MWRA communities.

As discussed in the previous response, MADEP must make a final determination on the water quality standards for the Alewife Brook, and these standards must be approved by EPA. Both financial impacts and public health impacts are factors which must be considered in CSO planning. Elimination of CSO discharges is required where it is affordable and technically feasible

These permits authorizing CSO discharges to Alewife Brook were previously issued in 1992 for Somerville and 1993 for Cambridge. Although they have expired, they are still in force until the new permits become effective. Since the issuance of these permits, the MWRA and its member communities have made ongoing progress in eliminating some outfalls and reducing the flows through others, while better understanding their sewer systems. Both communities have also implemented the nine minimum controls in 1997 and compliance with these is assessed on an annual basis.

Comment #3: More CSO signage is needed on both sides of Alewife Brook that is clearly visible and that contains a biohazard symbol. There are recreational uses of Alewife Brook that have brought people into close contact with that water; whether it be children who are playing in it, people who boat on it and people who fish it. I would ask that you provide the strictest, most comprehensive notification methodologies that you can think of regarding this issue on the Alewife. Signage should include phone numbers. This would benefit the permittee by providing an additional source of information about the condition of outfall structures and discharges.

Response: As noted in the response to comment #1, Somerville and Cambridge are required to improve upon and increase the CSO signage along Alewife Brook. This would include extensive language regarding "put-in" areas and other recreational access points to Alewife Brook.

A condition of the variance extension is that MWRA and its MCs must maintain informational signs at John Wald Park and other public access locations identified by the DEP to advise the public of CSO discharges and potential public health impacts and to provide contact information and website links. This condition is an enforceable requirement of this permit.

Submitted by the Town of Arlington's Conservation Commission:

Comment #4: There should be no relaxation of state water quality standards related to the discharge of these CSOs. Class B_{CSO} is unacceptable as it allows peak pollution rates at times when peak flows occur. Floatable controls should be installed everywhere along the Alewife Brook, at a minimum. Uniform and enhanced level of infiltration/inflow control is warranted in CSO areas where discharges will remain after the long term control plan (LTCP) is in place.

Response: The decision regarding the water quality standards will be made during the variance extension period. The situation in Alewife Brook regarding CSOs is especially difficult since the technology available to achieve total CSO elimination is expensive and will result in increased discharges of storm water to the brook during wet weather, which would worsen flooding conditions, unless significant storm water detention basins are constructed.

Even if CSOs were entirely eliminated, water quality data shows that there would be continuing violations of water quality criteria during wet weather due to storm water discharges. All of the communities discharging to the Alewife have obtained EPA storm water permits which require the development of storm water management plans which have specific programs to address pathogen discharges under the Phase II storm water permit for municipal separate storm sewer systems (MS4s). However, it remains to be seen whether management activities will be sufficient to achieve bacterial standards in storm water. Programs to detect and eliminate illicit connections to the sewer system are essential components of these storm water management programs. Floatables control has been included in the CSO abatement plan for any outfalls which will not be eliminated by sewer separation projects.

Submitted by David Stoff:

Comment #5: It is an unreasonable presumption on the part of MADEP/EPA that a UAA which removes primary contact recreation will also suspend the criteria protecting secondary uses. That case can only be made through a separate demonstration that the designated use to be removed is not an existing use of the water.

Response: Adopting a B_{cso} standard for the Alewife Brook would not remove secondary uses, nor would it remove primary contact uses when CSOs were not discharging. A B_{cso} classification would only allow CSO discharges (and the accompanying exceedances of Class B water quality criteria for fecal coliform) during a small number of rain storms. During these storms, the fecal coliform bacterial criteria in the Class B standard (primary contact) would not be achieved, nor would water quality standards for Class C (secondary contact) likely be achieved. The fact that secondary contact criteria would not be met during a CSO event does not preclude establishing a B_{cso} classification (providing the classification is supported by a UAA) since secondary contact during CSO events is not an existing use and the B_{cso} classification does not require attainment of bacterial criteria during CSO events.

Comment #6: The Notice of Project Change (NPC) refers to the difficulty in implementing full sewer separation. It would seem the preferred control technology has difficulty meeting the CSO Policy requirements for the cost-effective expansion were a higher level of control required. This suggests that another technology (disinfection) may be required in the future. If this is the case, why not begin conceptual planning now?

Response: Complete sewer separation is difficult for two reasons. The first is that removal of all single pipe (combined) sewer systems is expensive, particularly in densely populated areas and areas where the storm drain, rather than the sanitary sewer, must be replaced to alleviate local flooding conditions. Replacement of storm drains tends to be much more expensive given the significantly larger pipes need to transport storm water discharges. The second is that even when all areas are served by two pipe (separate) systems, there may be a significant amount of extraneous wet weather flow remaining in the sewer system because of plumbing within homes. This extraneous flow, from sources such as roof drains, basement sump pumps, and leaking service connections may surcharge the sewer system and cause overflows during extreme wet wether events. Where sewer separation is infeasible due to financial or technical factors, MWRA and its MCs must identify the highest level of CSO control and CSO storage and treatment alternatives must be considered in this evaluation.

Since there are limitations on the capacity of CSO storage and treatment alternatives, these technologies can only mitigate and not eliminate CSO discharges. Sewer separation is the only technology which effectively eliminates CSO discharges, and where elimination is the goal, the feasibility of sewer separation for all CSO outfalls must be considered. Where this is infeasible due to financial or technical factors, MWRA and the MCs must identify the highest level of CSO control and CSO storage and treatment alternatives must be considered in this evaluation.

For CSO discharges which activate very rarely, disinfection has not typically been required given the difficulty of maintaining these facilities so they will operate satisfactorily during the rare instances they are needed, and their unreliability in achieving adequate disinfection without causing chlorine toxicity in the receiving water.

Comment #7: There is no explanation of how CSO discharges remaining after implementation of the long term control plan (LTCP) relate to 303 (d)(1)(A) and 303 (d)(1)(C) TMDL requirements.

Part (4)(b)(ii) of the CSO control Policy requires a TMDL, including wasteload allocation for point sources and a load allocation for non-point sources be used to apportion pollutant loads where LTCP allowed discharges to continue, because attainment of water quality standards and designated uses was precluded by pollution sources.

Response: The Clean Water Act requires that States complete total maximum daily loads (TMDLs) for streams not achieving water quality standards after implementation of technology-based controls. The Alewife Brook has been identified by the state as a receiving water which is not achieving water quality criteria for pathogens, and is among approximately 1500 segments in Massachusetts for which TMDLs must be produced. While no TMDL is currently being conducted for Alewife Brook, such an analysis is not necessary to determine the appropriate control for CSOs since the state has determined that CSOs must either be eliminated or reduced to the extent feasible, as defined by the use attainability analysis (UAA) regulations at 40 CFR Section 131.10(g). A TMDL could not require CSO abatement facilities which are not feasible.

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. A TMDL analysis would be useful for other sources discharging to Alewife Brook, especially if storm water BMPs required by the communities' storm water NPDES permits are not effective in reducing pathogens from these sources. Clearly, control of both CSO and non-CSO sources will be critical to achieving improved water quality in the Alewife watershed.

Comment #8: The fact sheet notes that 40 CFR 124.74 lists appeal procedures. It appears that this section was previously removed from the regulations.

Response: This is correct. The current appeal procedures are enclosed with the final permit.

Submitted by Roger Frymire:

Comment #9: Modeled versus metered flows from Cambridge CSOs vary significantly. The MWRA and member communities should work together to verify metering and modeling data to account for these differences. CSO limits should be based on metered data coupled with existing plans to reduce CSO activations and volumes. There was also an objection to the use of a "typical year" relative to CSO planning in setting permit limits. On average, CSOs will spew 150 to 200% of volumes from a "typical" year. Permit limits based just on this "typical" year are very misleading to the public. Why not base the permit limits on the five year permit time frame or use 10 years as closer to the actual time before the next permit is expected?

Response: The permit specifies that a combination of measurements and estimation may be employed when quantifying CSO discharges. The final permit requires the member communities to develop a monitoring plan describing the methods they will use to quantify activation frequency and volume. EPA and MADEP are available to provide assistance in this matter. The City should also discuss this matter with MWRA and can also refer to EPA CSO guidance documents, including *Guidance For Monitoring And Modeling.* EPA's CSO guidance manuals may be found at http://cfpub.epa.gov/npdes/cso/guidedocs.cfm.

The resources necessary to develop and implement a CSO monitoring plan are reflected in MWRA's recent NPDES permit modification. This modification requires that MWRA provide an annual estimate of CSO discharges for member community CSOs to each member community by March 31st of each year. Somerville and Cambridge may develop their own method of quantification, or may report MWRA's estimates subject to some independent verification.

The typical year discharge characteristics are the expected discharge activation frequencies and volumes during a typical year after full implementation of the MWRA CSO Facilities Plan. Some of these frequencies and volumes have been revised as explained on Page 10 of this response. Any differences between the typical year characteristics and the actual discharges are to be reported and evaluated in years 3 and 5 of the permit (see Part I.D.4). If, during typical year conditions, the actual discharges are greater than typical year characteristics, this will be considered new information which may lead to modification of the MWRA CSO Facilities Plan, water quality standards and/or NPDES permit conditions.

Comment #10: For a stretch of about a mile between Pleasant Street and Endicott Street in Cambridge all intervening storm water outfalls were found to be totally plugged and not functioning. Approximately one square mile of Cambridgeport which is supposed to have separate sewers is currently functioning combined by numerous common manholes throughout this neighborhood.

Historically, as railroad operators have filled in mudflats and eventually most of the Millers River, B&M Railroad (now Guilford) signed agreements to provide drainage originally carried by this river. Failure to maintain this drainage adds two square miles of storm water which totally overloads sewer service in East Somerville. Backups resulting from the excess extend nearly to Central Square in Cambridge and extend the entire length of Somerville actually causing an inter-basin transfer to the Mystic River watershed which leads the SOM001A Tannery Brook CSO to activate. This permit should require a halt to all development by Guilford in Cambridge and Somerville until such time as the drainage agreements are adhered to.

Response: The City of Cambridge is currently reconstructing a significant portion of the sewer and drainage infrastructure between the outfalls at Pleasant Street and Endicott Street in the Cambridgeport area. Three projects with a total value in excess of $14 million are presently in construction or about to go to construction in this area. Two projects address the removal of 45 common manholes and also include the construction of significant structural BMPs to ensure adequate maintenance of the systems. The third project concentrates on the reconstruction of three (3) new outfalls in the area. Furthermore, the City is presently designing two more outfalls in this area to more effectively deal with stormwater, to further address common manhole removal, and to construct additional stormwater BMPs. Finally, the City has recently completed the construction of a new drainage system along Massachusetts Avenue at a cost in excess of $10 million and has removed 27 common manholes in the adjacent neighborhood at a cost of approximately $2 million. Collectively, these projects will result in reduced CSO discharges at

Cottage Farm and will significantly improve stormwater quality generated from the Cambridge neighborhoods south of Massachusetts Avenue and west of Western Avenue.

In the CAM017 area the City of Cambridge has prepared a facilities plan for its drainage and sewer system infrastructure. The goals of the facilities plan include: the improvement of water quality to the receiving water, the improvement of sanitary and storm water service levels, and the incorporation of structural BMPs that allow the systems to be more easily maintained. In developing this plan, the City is working closely with teams from both the MWRA and the City of Somerville, and with private property owners involved in large redevelopment projects in this area. The CAM017 project area impacts and is impacted by the Somerville and MWRA systems, as well as the MWRA Prison Point CSO facility and its operations.

Comment #11: These permits should contain a mechanism to verify that local and state sewer system connection programs and storm water management regulations are sufficient to protect wet weather water quality gains. It seems reasonable to seek the maximum removal of storm water from the sewer system and employ any BMP that will improve storm water quality. EPA mentioned that perhaps these permits would include a mechanism that would control dry weather loads that occur through new development in the combined sewer area. A uniform and enhanced level of infiltration/inflow (I/I) removal is warranted in CSO areas where discharges will remain after the LTCP is in place.

Response: Consistent with EPA's storm water Phase II permitting requirements, both communities have submitted Notices of Intent (NOIs) for permit coverage. These permits include detailed storm water management plans (SWMP) which have been reviewed by EPA and the DEP. One element of these SMWPs is required to address runoff associated with construction site activities. Although these permits will address the separate sewer systems of these communities only, measures that communities take to limit storm water flows and pollutants associated with them should also consider any effect this could have on the activation frequency or volume of CSO discharges.

The permit issued to the MWRA for its Deer Island treatment plant (MA0103284) has I/I requirements which also apply to its member communities. The MWRA permit directs the MWRA and its member communities to cooperate and remove excessive I/I from the sewer system. The City of Cambridge observes a policy regarding new development that requires developers to attenuate their discharge quantity to the two year storm event and to store or infiltrate a sufficiency of flow to insure that the peak discharge entering the City's system (leaving their system) for the twenty five year storm event is less than or equal to the two year storm event. Furthermore the City requires that in CSO sensitive areas that development offset any new sewage generated with at least three times the removal of existing inflow into the drainage system during the three month storm event. The city maintains the discretion to require more significant or alternative mitigation if such is deemed necessary in certain instances.

Information on existing storm water and CSO pollutant loads being gathered will help all interested parties to understand the relative impacts of these discharges and the corresponding benefits of CSO and storm water pollution abatement efforts. These collective strategies will also serve to reduce system surcharging which contributes to CSO discharges and therefore should have overall benefits to the CSO abatement program. The sewer separation work included in the MWRA CSO abatement plan in Cambridge will also serve to remove a significant volume of public (storm water) inflow into the sewer system as well.

Submitted by Nancy Hammett of the Mystic River Watershed Association:

Comment #12: We believe the applicant cannot meet minimum technology based permit requirements without improved characterization of the system. Compliance with Nine Minimum Controls (NMCs) #2 and #4 cannot be assessed because modeling does not accurately reflect movement of sewage and storm water through the collection system. Discrepancies between modeling and metered data suggest that compliance with NMC # 1 , 3 and 5 may also be inadequate. Level of public notification (NMC #8) is inadequate. We request that Cambridge and Somerville be required to demonstrate compliance with the NMCs by providing regular reports on the characterization of sewer discharges to Alewife Brook, to support proper maintenance of the system, and to determine where the system is discharging during dry weather and investigation of problems that may be resulting in excessive storm water entering the system, or restrictions on the flow to the POTW for treatment.

Response: Under these permits, the Cities of Cambridge and Somerville are required to submit annual reports documenting efforts to comply with the Nine Minimum Controls, assessing their compliance with the NMCs and documenting efforts to enhance their effectiveness through necessary modifications.

Regarding characterization of the movement of sewage and storm water through the collection system, we expect ongoing coordination between the MWRA and its MCs. We expect improved assessment of drainage systems due to further study, illicit connection investigations and enhanced permit reporting requirements. Outfall signage will be improved as explained in response to Comment #1.

Comment #13: We are concerned about reissuing these permits before a decision is made on the current variance this fall. If issued prior to variance expiration, these permits should contain reopener clauses. The trigger points discussed in the variance need to be better defined.

Response: The variances for the Alewife/Mystic and lower Charles basins have both been extended, as noted earlier. The Upper Mystic/Alewife variance was extended to September 1, 2007, and the Lower Charles variance was extended to October 1, 2007. These permits contain reopener clauses which would result in permit modifications as necessary to reflect post-variance conditions.

September 16, 2005