

**RESPONSE TO PUBLIC COMMENTS**

**Cohasset Wastewater Treatment Plant**

On April 25, 2007, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) released for public notice and comment a draft National Pollutant Discharge Elimination System (NPDES) permit developed pursuant to an application from the Cohasset Wastewater Treatment Plant, for the reissuance of its permit to discharge treated municipal wastewater to the designated receiving water, Cohasset Harbor. The public comment period for this draft permit ended on May 24, 2007. Comments were received from:

Comment #s   Commenter

- |       |   |
|-------|---|
| 1-9   | Riverways Program-Massachusetts Department of Fish and Game |
| 10-11 | Cohasset Harbor Health Committee                            |
| 12    | Massachusetts Office of Coastal Zone Management             |
| 13    | Massachusetts Bays Program                                  |

After a review of the comments received, EPA has made a final decision to issue the permit authorizing this discharge. The comments and EPA's responses are presented below. The comment letters are part of the administrative record and are paraphrased herein. A copy of the final permit may be obtained by writing or by calling Doug Corb, EPA Massachusetts NPDES Permits Program (CMP), 1 Congress Street, Suite 1100, Boston, MA 02114-2023; telephone: (617) 918-1565 or on line at [http://www.epa.gov/region1/npdes/draft\\_permits\\_listing\\_ma.html](http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html).

Comment 1

Given the significant I/I [infiltration/inflow], how much additional plant capacity could be made available for new tie-ins through reductions in I/I? Approaching the problem of finding a way to treat additional flows from areas with problematic on-site systems, where sewerage rather than upgrades and innovative decentralized options has been determined to be the best option, may be to invest in I/I reduction rather than plant expansion. This could result in more plant capacity made available in a shorter period of time, for less cost and reduce the percent increase in effluent discharged to the receiving water. Has there been a thorough and impartial assessment of this alternative? If this has been done, have the results been assessed by the regulators as part of this permit renewal and [do they] agree that a 0.15 mgd [plant] expansion is necessary?

Response 1

The sewerage of the additional areas and the plant expansion are required by the Commonwealth of Massachusetts under the *Commonwealth of Massachusetts v. Town of Cohasset, Joint Motion to Further Modify the Second Amended Final Judgment, and Dated September 8, 2006*.

The additional plant capacity will allow the tie-in of failing septic systems that now release bacteria and nutrients to surface waters, causing shellfish bed closures. Options other than plant expansion were reviewed thoroughly under the Massachusetts Environmental Policy Act (MEPA). See the *December 2006 Single Environmental Impact Report (EOEA #13872 & #10275) Central Cohasset Wastewater System Phase IV Collection System and Wastewater Treatment Plant Expansion, Cohasset, MA*. Through the MEPA process, the plant expansion option was chosen over the other alternatives.

The Final Permit includes extensive I/I control requirements. Section F.3 of the Permit requires the permittee to prepare and implement an Infiltration/Inflow Control Plan sufficient to prevent infiltration/inflow-related effluent limit violations, and all unauthorized discharges of wastewater due to excessive infiltration/inflow. The majority of the I/I comes from old vitrified pipes passing through high ground water areas and marshes. The permittee has committed to addressing these areas through ongoing I/I work.

Comment 2

The Cohasset Harbor system appears to be relatively healthy though the Fact Sheet does note the presence of moderate levels of nitrogen in the inner and outer harbor found in samples taken by MassDEP. This finding begs the question of how much more loading can the harbor assimilate before noticeable degradation occurs?

Response 2

EPA's Ocean and Coastal Unit worked closely with the Mass Bays Program and the Massachusetts Office of Coastal Zone Management (MCZM) to assess the available water quality information to determine the health of the Harbor and the ability of the Harbor to assimilate the increased discharge from the wastewater treatment plant. It was found that healthy embayments in this portion of the coast generally have ambient total nitrogen concentrations less than 0.4 to 0.5 mg/l. The total nitrogen concentrations in Cohasset Harbor are currently less than this value and are expected to remain below this value after the plant expansion. The ambient monitoring program required in the permit, developed in cooperation with MassDEP, MCZM, and Mass Bays staff, was established to confirm these judgments.

Comment 3

The Fact Sheet indicates the wastewater treatment facility has already undertaken an expansion - a relatively recent one. The EPA's PCS database shows flow and nutrient concentrations have been slowly increasing in the receiving water since the 2000 expansion. The MA Department of Environmental Protection's most recently available Watershed Assessment Report, (305b report) states, "the effects, if any, of the Cohasset WWTP discharge are unknown." - (MassDEP, 2001). This statement, and the relative newness of the discharge, raises questions about how certain one can be about the existing discharge's impact on the receiving water. In estuarine systems impacts to the ecosystem may not be quantifiable in the short term. Has the 2000 marked increase in flow initiated undesirable changes in Cohasset Cove and Harbor that are have not been captured or observed yet? It may be hard to definitely answer this question with the available data.

Response 3

As described in the fact sheet, the treatment plant was expanded in 2000, from a design flow 0.072 MGD to a design flow of 0.3 MGD. Treatment efficiency was also improved with the addition of membrane filters, and a new outfall was constructed, relocating the discharge from James Brook to Cohasset Harbor. The ambient monitoring data collected since the upgrade and expansion of the treatment plant shows that Cohasset Harbor remains healthy. We believe that this data accurately reflects the impact of the existing discharges on the harbor (note that the treatment plant is just one source of nitrogen to the harbor). Additional ambient data will be collected by the Mass Bays Program and by the Town as required by the permit, to confirm that the discharge is not causing or contributing to violations of water quality standards. Also see response number 4.

Comment 4

We note the DEP report found the whole effluent 48 hour toxicity tests performed on the dilution/receiving water did not always produce 100% survival of the two test species and in one test the survival was only 60% over the 48 hour test. This suggests there may be some low level problems in the receiving water that could be exacerbated by another increase in effluent that allows some degree of increase in pollutant loads. We would like to advocate for permit limits that maintain the current actual average load of pollutants- notably total nitrogen if a flow increase can not be avoided.

Response 4

As shown in the response to comment 9 (see below), there has only been one violation of WET limits out of 18 tests (9 samples, two species) since November, 2004. All other tests results have shown the LC<sub>50</sub> to be greater than or equal to 100%. Additionally, the effluent chemical data associated with these tests does not show any values which would result in exceedances of aquatic life criteria.

As outlined in the Fact Sheet accompanying the Draft Permit, there are anticipated improvements planned in the James Brook and the Harbor watershed through additional sewerage and non-point source education programs that will further decrease the pollutant loading to the harbor, resulting in a partial offset of the increased nitrogen discharge from the treatment plant.

Comment 5

The Fact Sheet provides a discussion on the nitrogen issue and how this marked increase in effluent flows may not result in an appreciable increase in the nitrogen load. The calculations used to determine the current load to Cohasset Cove use a concentration of 10 mg/l total nitrogen to estimate a current WWTP load of 20 lbs/day. This is a generous load since a review of the recent effluent concentrations available through the PCS database shows the average monthly concentration is closer to 6.79 mg/l (using data from 1/04 through 3/06) which would result in a 17 lbs/day load. If the expansion of the plant results in a daily load closer to 37 lbs/day, there may be a doubling of total nitrogen entering into the Cove which is already assessed as having moderate nitrogen concentrations.

Response 5

The antidegradation review completed by MassDEP estimated the nitrogen load from the treatment plant to be 25 lbs per day based on an effluent concentration of 10 mg/l and the current design flow of 0.3 MGD. MassDEP noted that the effluent concentrations ranged from 6 to 12 mg/l. We believe that this is a reasonable approximation of current nitrogen loading based on 2006 data. The improved performance of the expanded plant and the offset of nitrogen removed by additional sewerage in the James Brook Watershed should limit the increase in nitrogen loading compared to recent data.

Comment 6

The Fact Sheet does cite the likelihood of indirect reductions in nitrogen load that would offset the increases associated with an expanded effluent flow. A large gain is predicted through the sewerage of additional areas in the town through a decrease in nitrogen entering into James Brook from on-site systems. The predicted current load in this stream is 5 lbs/day.

The most recent MassDEP South Coastal Assessment does not appear to have included James Brook in its surveys and no James Brook data is provided in the Assessment's section on Cohasset Cove or Harbor. Is the 5 lbs/day nitrogen load an estimate or based on sampling in the Brook? Is it assumed all of this load will be eliminated with the expansion of the sewer to the Atlantic Avenue, Jerusalem Road and Little Harbor areas? It is likely Atlantic Ave. and Jerusalem Road drain to near coastal waters, not James Brook, based on the topography available on the USGS quadrangle for this area and it appears only a small section of the Inner Harbor area would drain to James Brook. This suggests some of the nitrogen load in James Brook may be from nonpoint origins, such as lawn care chemicals used in this mostly residential area, unless there is a particularly egregious on-site system. Nonpoint sources would not be reduced through sewerage in the neighborhood and could continue to enter Cohasset Cove via James Brook. It may be optimistic to estimate a 5 lb/day reduction of N in James Brook/Cohasset Cove through sewerage.

Response 6

The offset discussed in the Fact Sheet is for the James Brook area and does not include the Atlantic Ave. or Jerusalem Road areas. While the water quality in these areas will see significant improvement, the reductions were not estimated in our analysis because these areas do not impact water quality in Cohasset Harbor.

The high bacteria counts in the James Brook appear to indicate significant contributions of wastewater discharged from failed septic systems. Reductions in those wastewater discharges will also reduce nitrogen discharges.

The Town is planning an education program for non-point source pollution from yards and lawns. The rough estimate of 5.0 lbs of nitrogen being removed from the load in James Brook is based on comparisons from similar sewerage projects, rather than sampling data. The ambient monitoring was required to address any uncertainties in the estimates.

Comment 7

Since the goal is to keep this relatively healthy coastal system healthy, it would be wise to consider if the inevitable additional load associated with an expanded plant might be enough to tip the scales from moderate to undesirable nitrogen concentrations. Such a shift might result in habitat degradation and/or losses to the eelgrass bed extent, vigor or density. The permit does include a pro-active requirement for the permittee to undertake an ambient water quality monitoring program to monitor conditions in order to quickly identify if the increased pollutant loads associated with the large flow increase is degrading the receiving water. This requirement is well beyond the usual requirements found in a permit renewal and we completely concur on the need to monitor the receiving water should the plant be expanded.

While the monitoring is a positive measure providing a relatively timely alert system; we would still like to advocate the existing actual monthly average total nitrogen load (about 17-18 lbs/day) be maintained through a permit limitation in order to maintain a status quo that appears to support a reasonably healthy estuarine ecosystem. Preventing degradation instead of acting quickly should degradation be found through monitoring is an approach we consider preferable.

Response 7

As outlined previously, we believe that the increase in the wastewater load of nitrogen will be somewhat offset by eliminating failed septic systems currently discharging to James Brook, and by reductions in nonpoint sources through increased public education. EPA's Oceans and Coastal Unit has studied eelgrass in the area and will continue these studies to ensure that eelgrass is not impacted by the increased discharge from the treatment plant.

Comment 8

Elevated copper concentrations have been an issue at some South Coastal watershed treatment facilities. While there was no specific discussion in the fact Sheet concerning copper or other metals, we assume the concentrations of all of the priority pollutants analyzed during whole effluent toxicity testing were below any concentration that poses a reasonable potential to exceed and federal or state recommendations thus there is no need for permit limitations or additional sampling requirements.

Response 8

Data found in the DMRs, whole effluent toxicity test reports, and watershed assessment reports were assessed for the pollutants with the "potential to cause, or contribute to an excursion above any State Water Quality Criteria". All known pollutants in the effluent (including copper) were in concentrations below State Water Quality Criteria after accounting for dilution and any known background concentrations.

Comment 9

The PCS database has many non-report indicators for the WET testing results. Of the nine listed dates for each species, information is entered for only three dates. Have there been problems with the reporting of WET testing results or is the absence of data just a data entry issue? Of the six WET test results in the database, there is one significant noncompliant test result. Have there been issues with the whole effluent toxicity (based on the missing data) or is this one poor test an aberration?

Response 9

Whole effluent toxicity (WET) reports are received and reviewed by both EPA and MassDEP. The absence of WET data in the fact sheet was due to problems in migrating the historical WET data to EPA's new Integrated Compliance Information System (ICIS). The Discharge Monitoring Report (DMR) data attachment to the Fact Sheet, generated by ICIS, included incomplete WET data. The following complete WET testing data set demonstrates that there was only one failed WET test. We believe that this result was most likely an aberration since the overall WET results have not shown any acute toxicity. EPA and MassDEP shall continue to review WET results from Cohasset.

2 species: mysid shrimp *Americamysis bahia* and inland silverside *Menidia beryllina*

NOV 2006: LC50 >100% both species

AUG 2006: LC50 >100% "

MAY 2006: LC50 >100% "

DEC 2005: LC50 >100% "

AUG 2005: LC50 >100% "

MAY 2005: LC50 >100% for > *M. beryllina*; 41.9% for *A. bahia*

FEB 2005: LC50 >100% both species

DEC 2004: LC50 >100% "

NOV 2004: LC50 >100% "

Comment 10

Perhaps I don't fully understand, but I was somewhat disappointed in the lack of concern expressed over the additional fresh water input into the inner cove of the harbor. While the salinity may be within limits now, the testing by Mass Bays, as I understand it, shows a clear fresh water plume extending from the inner cove to well into the mid-channel area. Coupled with the same data that indicates the cove does not flush in several tides, I would ask that this be given further consideration.

Response 10

Cohasset Cove is an estuary where saltwater and fresh water naturally mix. The contributions of freshwater from James Brook and the Gulf dwarf the 150,000 gallon per day increase in permitted treatment plant flow most of the time.

Only during brief extreme dry weather periods when fresh water flows are lowest from James Brook and the Gulf, will the treatment plant fresh water contribution to the estuary (0.45 mgd) exceed 10% of the total fresh water flow. The fresh water increase from the treatment plant should have no impact on the health of the harbor.

Comment 11

For the same reasons, I continue to be concerned about the proposed overflow plan to bypass the anoxic tank and discharge overflows directly into the inner cove via the outfall pipe.

Response 11

The permit specifically prohibits bypasses of any portion of the treatment process. The plant expansion and ongoing I/I work should address such bypasses.

Comment 12

The Office of Coastal Zone Management (CZM) has reviewed the draft National Pollutant Discharge Elimination System permit for the Cohasset Waste Water Treatment Plant (WWTP). We are pleased to see that the permit contains a limit for total nitrogen and that the limits for fecal coliform bacteria are set at the Massachusetts SA shellfishing limit, thus protecting both shellfishing and swimming activities in Cohasset Harbor.

We concur with the Environmental Protection Agency's decision to include ambient monitoring as part of this permit. CZM believes that the monitoring plan for Cohasset Cove and Cohasset Harbor outlined in the draft permit is both reasonable and necessary to ensure that the additional 150,000 WWTP discharge flow proposed by the Town and allowed by this permit does not degrade the water quality of and the habitat within Cohasset Harbor. We believe the required monitoring parameters (total N, ammonia, nitrate-nitrate, total Kjeldahl nitrogen, salinity, chlorophyll a, temperature, and dissolved oxygen) are the right suite of parameters to provide a comprehensive evaluation. Further, we agree with the monitoring schedule during years 1, 4, and 5 of the permit.

Response 12

No response is necessary.

Comment 13

The Massachusetts Bay National Estuary Program (MBP) has participated with the Massachusetts Office of Coastal Zone Management (CZM) in its review of the draft National Pollutant Discharge Elimination System permit for the Cohasset Waste Water Treatment Plant (WWTP).

We support the limits contained in the permit for total nitrogen fecal coliform bacteria. We feel that this is an important step for protecting the Cohasset Harbor ecosystem for both important human as well as aquatic life uses.

We concur with the Environmental Protection Agency's decision to include ambient monitoring as part of this permit since the 2006 Cohasset Harbor monitoring data conducted by our program indicate reaching potentially critical nitrogen thresholds (when compared to MassDEP estuaries project nitrogen goals for habitat quality) in the inner portion of the Harbor . The MBP believes that the monitoring plan for Cohasset Cove and Cohasset Harbor outlined in the draft permit is both reasonable and necessary to ensure that the additional 150,000 WWTP discharge flow proposed by the Town and allowed by this permit does not further degrade the water quality of and the sensitive habitats that exist within Cohasset Harbor system. We concur with CZM that the required monitoring parameters (total N, ammonia, nitrate-nitrate, total Kjeldahl nitrogen, salinity, chlorophyll a, temperature, and dissolved oxygen) are the minimum suite of water quality parameters necessary for monitoring water quality impairment. Further, we support the monitoring schedule during years 1, 4, and 5 of the permit.

Response 13

No response is necessary.