

RESPONSE TO PUBLIC COMMENTS

From August 22, 2006 until September 20, 2006, the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited Public Comments on a draft NPDES permit, developed pursuant to an application from the Town of Spencer Wastewater Sewer Commission for its wastewater treatment plant, located in Spencer, Massachusetts. After reviewing the comments received, EPA has made the final decision to issue the permit authorizing the discharge. The following describes and responds to comments, and describes any subsequent changes to the draft permit. A copy of the final permit may be obtained by writing to Mark Voorhees, United States Environmental Protection Agency, 1 Congress Street, Suite 1100 (CPE), Boston, Massachusetts, 02114-2023 or by calling (617) 918-1537.

Copies may also be obtained from <http://www.epa.gov/region1/npdes/index.html>.

A. Comments Submitted by Cindy Delpapa, Commonwealth of Massachusetts, Riverways Program

Comment A1: The Fact Sheet notes there have been bypass events at this facility. Since the monthly average effluent and most of the influent volumes are consistently well below the design flow of the facility, the need to bypass indicates a significant inflow and infiltration problem in the collection system. The standard permit requirements outlining I/I reduction efforts are a start but the permittee needs to implement I/I reduction strategies quickly, not just develop a reduction plan, if more bypass events are to be avoided. The prohibition against bypasses is strong incentive for immediate I/I removal and it is our hope the Permittee will work on I/I removal in addition to finalizing its remediation plan.

Response A1: Part I. B of the permit, Unauthorized Discharges, recognizes that bypass events are not permitted. Specifically, Part I. B states that, "Flow in excess of the plant's treatment capacity which does not receive full secondary treatment is not a permissible bypass under 40 CFR §122.41(m) and is not authorized by this permit". Thus, during any bypass event, the permittee would be in noncompliance with the conditions of the permit and subject to enforcement action. As noted by the commenter, prohibition against bypasses is a strong incentive for immediate I/I removal.

Furthermore, it is stated in the conditions of the permit, under Part I. C. 3, that the Permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. This plan is to be submitted to EPA and MassDEP within six months of the effective date of the permit, and must describe the Permittee's means for preventing infiltration/inflow related effluent limit violations and all unauthorized discharges of wastewater, including overflows and bypasses due to excessive infiltration/inflow. In this plan, the Town is required to provide the funding level and funding sources that will be used to remove sources of I/I. While we expect the Town to

move forward expeditiously to secure the necessary funding, we recognize that the Town must secure the funding using defined appropriation procedures.

Comment A2: The phosphorus limits in the draft permit are partially technology based and also a result of TMDL load allocations for downstream impoundments. The 0.2 mg/l limit is likely to fall short of reaching the EPA recommended ecoregional instream concentration in Cranberry Brook since there is limited dilution of the effluent in summer months but the load limits appear to be adequate to meet the TMDL load allocation for Quaboag Pond. The daily load limit is to be calculated as a seasonal average and reported at the end of the season. It is our opinion the end of season calculation is not an ideal approach to controlling phosphorus loads in the receiving water-especially with a facility struggling with excessive I/I. We hope this seasonal load limit will be reconsidered if the actual monthly and daily loads indicate problematic trends correlated to water quality problems (algal blooms, depressed DO, organic enrichment, aesthetic issues). While, as the Fact Sheet notes, Cranberry Brook is not listed as nonattainment for the indicators usually associated with cultural eutrophication it is not accurate to say Cranberry Brook does not experience these problems since the brook is listed as unassessed, as opposed to attaining uses, by the MassDEP, thus its status is unknown.

Response A2: EPA commits to reevaluate the phosphorus limitations based on a review of future daily and monthly phosphorus loading from the facility and available receiving water quality data. If a future review shows that a shorter averaging period is necessary to achieve water quality standards, EPA will consider reopening the permit and proposing such a limit (e.g., monthly average limit) in a permit modification.

As stated in the Fact Sheet, Cranberry Brook and the Sevenmile River are not listed for excursions of water quality standards for nutrients, DO, aquatic plants or other indicators of eutrophication. The purpose of this statement was to clarify that there is **not** current information available to ascertain whether the rivers are experiencing cultural eutrophication and whether water quality based phosphorus limits more stringent than those needed for Quaboag Pond are warranted at this time. However, EPA acknowledges the unknown status of these receiving waters. During the site visit the permit writer viewed Cranberry Brook in the vicinity of the discharge outfall and its confluence with the Sevenmile River and did not observe any evidence of cultural eutrophication. In any event, the Fact Sheet clearly states that should new water quality information become available or if the state develops water quality criteria that would require more stringent limits, the permit may be reopened and modified.

Comment A3: We agree with the statement in the Fact Sheet regarding the Spencer Facility's admirable efforts in maintaining low ammonia concentrations year-round. We also agree with the reasoning provided for the year-round ammonia limits. With such a low dilution in the Brook and the status of the waterway unassessed, providing the safe guard of a year-round ammonia limit is a sound idea.

Response A3: Comment noted for the record.

Comment A4: The facility is unique because it is one of the few plants which frequently treats more influent than it discharges due to “loss” of treated wastewater in the (created) wetland beds. Since there is often a significant dichotomy in the influent and effluent numbers, we hope the Permittee will continue to report influent volumes. Because of the difference in the flow treated at the facility and the discharge volume, we would like to recommend a slight modification to Part I.A.1.f to have the annual influent flow exceeding 80% design flow in a calendar year act as the trigger for a report to MassDEP. This request is based on the intent of this clause which revolves around the capacity of the plant to treat flows and this volume is better reflected by influent numbers for the facility.

Response A4: EPA agrees with this comment and has clarified Part I.A.1.f in the final permit to require the annual influent flow exceeding 80% design flow in a calendar year act as the trigger for a report to MassDEP.

Comment A5: The draft permit proposes to reduce the frequency of the whole effluent toxicity testing to twice annually based on recent test results. The PCS database indicates there was no WET data submitted for August 2005 which could be construed as a failure of the tests. May 2004 had a C-NOEL test result that would be a failure based on the new dilution factor. While we appreciate the requirement for retesting of the effluent should there be a WET test failure, we would still like to support the reduction in WET testing be delayed for at least another permit cycle given the change in the C-NOEL to 92%, and the ongoing copper exceedences.

Response A5: In August 2005, the LC50 was reported as >100%. The C-NOEC was not reported because the test was determined to be invalid due to 70% survival (less than the EPA acceptability criterion of $\geq 80\%$) in the dilution water sample taken from Cranberry Brook, collected on August 19, 2005. As explained in a letter from the Town of Spencer to EPA (dated September 29, 2005), although no value was reported for C-NOEC, the test showed that treatment plant effluent (sample of 100% effluent) was not toxic to the test organisms.

The May 2004 chronic test reported a C-NOEC of 89%. The dilutions (percent effluent concentrations) used for this test were 6.25, 12.5, 25, 50, 89, and 100%. Only the 100% test failed the reproduction portion of the test. It cannot be deduced from this test whether a sample with an effluent concentration of 92% would have failed the test because this dilution was not analyzed. Therefore, EPA views the results of this test as passing or complying with the permit limit. However, EPA has reviewed more recent WET tests submitted for February, May, and August 2006. The results of these tests for LC50 (48-hour and 7-day), C-NOEC and C-LOEC were all >100%. Given the recent results and demonstrated consistency in the WWTF’s ability to meet the WET limits, the final permit retains the requirement for two annual WET tests. However, as a contingency, the permit proposes to require that if any future toxicity test should fail to comply with the limits, the Permittee must re-test the effluent within fourteen days of the original test.

Comment A6: The 7Q10 flow for this facility was extrapolated using watershed area and flow data from the Sevenmile River gage. One potentially complicating factor was not mentioned in the narrative on the flow and this is the 0.97 mgd permitted and registered withdrawal of potable water in this river section. It is possible that a withdrawal of this size could have an affect on base flow since water withdrawals tend to peak during low flow months drawing from groundwater reserves feeding the river. Withdrawals from the groundwater of such a small drainage could mean there is a local dewatering in the stream. Has data been collected or observations made to see if the withdrawal does influence low flows? If this is a possibility, the dilution factor is likely not conservative enough and we hope the permit conditions can be reconsidered.

Response A6: EPA and MassDEP are not aware of existing data that could be used to evaluate the potential impacts of well withdrawals on low flow conditions in Cranberry Brook. It is difficult to ascertain whether the well is affecting the estimated 7Q10 flow for Cranberry Brook without site specific data. Without such data, EPA is relying on continuous flow data collected at the nearby USGS gage located on the Sevenmile River to estimate low flow conditions for this permit.

B. Comments Submitted by Gregory J. McVeigh, Wright-Pierce on behalf of the Spencer Sewer Commission

Comment B1: EPA/MADEP have included in Part I.A.1.f, “The Permittee is required, when the average annual flow in any calendar year exceeds 80 percent of design flow, to submit a report to MassDEP on how the Permittee will remain in compliance with the limitations in the permit, specifically flow.” Please confirm that the “average annual flow” reference is the influent flow. Also, explain the need to comply with influent flow limitations if discharge limitations are being met?

Response B1: The annual average flow referred to Part I.A.1.f is for influent flow. Part I.A.1.f in the final permit has been revised to clarify this requirement.

Influent flow limitations are necessary, even when discharge limitations are currently being met, to ensure that that future growth will not cause high flow-related effluent violations. As noted in the Fact Sheet, bypasses of secondary treatment have occurred at the facility because of excessive I/I in the collection system. Spencer is required to address excessive I/I and prevent future bypasses from occurring.

The flow limit, which is established at the design flow of the facility, also ensures that the water quality based limits in the permit are protective. The dilution factor used to calculate water quality-based effluent limits is established using the design flow. If discharge flows were to exceed the flow limit, the dilution factor would decrease and the water quality-based limits would not be protective of water quality standards.

Comment B2: 1/Month E. coli bacteria sampling during May 1- October 31 has been added. This is in advance of MADEP moving to E. coli testing at the end of 2006. Therefore, for a period of time Spencer WWTP will be conducting 1/month, between

May 1-October 31, *E. coli* and fecal coliform bacteria sampling. The Commission requests that the need to test for Fecal Coliform time out at the time the proposed revisions to the Massachusetts Water Quality Standards is adopted.

Response B2: EPA has revised the final permit such that the fecal coliform limits and monitoring will be eliminated one year from the effective date of the permit, when the *E. coli* limits go into effect. *E. coli* will be monitored and reported once per month for the first year of the permit, and thereafter increase to 1/week. The seasonal period during which both the fecal coliform and the *E. coli* limits are effective has been extended to April 1 – October 31 to ensure that the complete recreational season is covered.

Comment B3: Ammonia-Nitrogen limits for December 1 – April 30 of 15.2 mg/l or 136 lbs/day has been added. The winter limits are “precautionary” (if nitrification were to cease during the winter) and does not seem warranted based on Spencer’s past performance. Also, the winter limits were developed based on less critical in-stream conditions than the November limits (pH 7.1 @ 5 degrees C) vs. pH 6.5 @ 5 degrees C and instream limit of 5.0 mg/l). This means that either the November limits are too low or the December limits are too high. Why are instream criteria for determining the limits different?

Response B3: While the Spencer WTF has performed very well at maintaining ammonia removal and discharging very low effluent ammonia concentrations during the cold-weather seasons, a reasonable potential still exists for the facility to cause or contribute to in-stream ammonia toxicity if nitrification were to fail at the facility during the cold weather season. Therefore, ammonia limits for the months of December to April are included in the final permit.

The existing permit includes an ammonia limit of 8.5 mg/l for the month of November. As discussed, the facility has complied with this limit. This limit has been established to prevent in-stream toxicity and has been retained in accordance with antibacksliding requirements. The limits developed for the months of December to April are based on estimated in-stream pH and on the available dilution (30Q10), which was calculated for this period using stream flow data as discussed in the Fact Sheet. These conditions differ from conditions for the month of November, which has a lower available dilution flow and higher pH, resulting in a more stringent limit.

Comment B4: Total phosphorus (TP) May 1-October 31 seasonal average limit (0.79 lbs/day) is based on 0.2 mg/l and assumes that the limit could be met if the average summer discharge flow is 0.47 MGD. The current TP loading for May-October in the TMDL was based on Spencer WWTP’s DMR flows and concentrations reported (see second paragraph, page 42 of the TMDL). Please identify which DMR flow and load data were used by EPA/MassDEP to determine the current 131 kg/yr or 0.79 lbs/day loading.

The Fact Sheet shows that monthly average summer discharge flow during May 1-October 31 at the Spencer WWTP was 0.644 MGD. If the loading limit is based on

actual discharge flows then why is an undocumented average summer discharge flow at the Spencer WWTP of 0.433 MGD required to meet the limit?

Response B4: The Spencer WLA is based on the TMDL analysis for Quaboag Pond. The analysis used a water quality model, ambient water quality data collected in the lake, and data collected from strategic locations in the watershed, including effluent data from the Spencer WWTF. This analysis is based on data collected during 2003. For the critical growing season, the WLA for the Spencer WWTF was set at 131 kg/yr. This WLA was derived using the model, which is based on data collected during 2003 and after considering reductions from other watershed phosphorus sources. The TMDL states that the Spencer WWTF would meet this WLA during the growing season if the effluent total phosphorus concentration is no higher than 0.2 mg/l as phosphorus and the average effluent flow was below 0.47 MGD. This flow value is in agreement with the average daily effluent flow rate for the growing season of 2003.

The commenter states that the monthly average summer discharge flow is 0.644 MGD, but does not specifically identify which data in the Fact Sheet were used to calculate this value. It appears that the commenter may have used the influent flow data in Attachment 1 and calculated the average flow for the months of May-September for 2004 and 2005. Based on using the effluent flow data in Attachment 1 for the same months, the summer average effluent flow is 0.399 MGD, which more closely reflects the TMDL flow value of 0.47 MGD.

Comment B5: The total phosphorus November 1-April 30 seasonal average limit (1.19 lbs/day) is based on a “winter flows are typically 50% higher” over the May 1-October 31 seasonal average limit, holding the concentration at 0.3 mg/l and assuming that the limit could be met if the average winter discharge flow is 0.47 MGD. Does EPA/MassDEP have site specific stream data to substantiate the “winter flows are typically 50% higher”?

Seeing “there is no specific information concerning the possible effect of winter adsorption or storage of phosphorus with subsequent release” why not establish a November 1-April 30 seasonal average limit based on a concentration of 0.3 mg/l and realistic monthly average winter discharge flow of 0.8257 MGD (see Fact Sheet). This equates to a limit of 2.07 lbs/day which provides a reduction in winter phosphorus concentrations and loads in keeping with the TMDL and provides a protective winter loading to both groundwater and soils between the constructed wetlands and nearby surface waters.

Response B5: The draft TMDL submitted to EPA on May 24, 2006 (which EPA expects to approve in the near future) states that “Because Quabog Pond has a short retention time and winter loadings are not expected to directly impact the pond during the critical summer period, the Spencer WWTP may be allowed to operate with somewhat relaxed winter limits. There is no specific information concerning the possible effect of winter adsorption or storage of phosphorus with subsequent release and so it is prudent to continue to reduce winter phosphorus concentration and loads somewhat. Because winter

stream flows are typically 50 percent higher the winter limits (November – April) can be set 50 % higher (1.19 lbs/day).”

The permit limits have been established consistent with the WLA in the draft TMDL, which we believe are the limits necessary to protect water quality. The mass loading limit for the November 1 – April 30 season of 1.19 lbs/day will therefore be retained.

For clarification, it appears that the commenter has used the treatment plant influent flow in the calculations of “realistic average winter discharge flow”. The average effluent flow during the months of November through April during 2003-2004 and 2004-2005 was 0.69 MGD.

Comment B6: The second paragraph of “Paragraph B. Unauthorized Discharges” of the Draft NPDES permit requires all flows to receive full secondary treatment. The Spencer Sewer Commission, as part of the 1987 WWTP upgrade, had the existing Flo-Matcher wastewater pump station redesigned to be used as an influent high stormwater pump station to eliminate sanitary sewer overflows (SSOs) within the collection system. This pump station redirects influent flows, above 5.4 MGD, into the treatment plant into the last two wetland beds for storage and discharge into the wetland effluent line to UV disinfection via underdrain flow from the wetlands. The influent high storm water pump station historically is used less than once per year. The current treatment process configuration prevents the Spencer WWTP and collection system from discharging untreated wastewater to surface waters, and enables the Spencer WWTP to comply with their effluent discharge limits during peak storms. The Commission requests that the second paragraph be removed from the Draft NPDES permit.

Response B6: Occasional bypasses of secondary treatment occur at the Spencer WWTF because of excessive wet-weather related I/I in the collection system. While partially treated bypasses are environmentally preferable to untreated SSOs, bypasses of the nature occurring in Spencer may not be authorized in NPDES permits (see 40 CFR 122.41(m)(4)(i), *Prohibition of bypass*). Such bypasses may be subject to enforcement since they do not meet the conditions defined in 40 CFR §122.41(m)(i)(A-C) because the removal of excessive I/I to reduce influent flow is a feasible alternative to the bypasses. Therefore, the final permit does not authorize secondary treatment bypasses at the facility. Continued efforts by the Town of Spencer to remove excessive I/I should eliminate the occurrence of bypasses at the facility.

Comment B7: Page 2 of the Fact Sheet discusses additional monitoring (BOD, TSS and total phosphorus), but conditions are not found in the permit. Please clarify.

Response B7: The reference on page 2 of the Fact Sheet that indicates additional monitoring (BOD, TSS and total phosphorus) for bypass events is in error. The final permit does not include new monitoring requirements for bypasses.

Comment B8: Paragraph C. 3, Infiltration/Inflow Control Plan. The Spencer Sewer Department personnel, as a part of the current NPDES permit, have developed and submitted an annual I/I control plan addressing those items outlined in the Draft NPDES permit. Is it necessary for the Sewer Department to develop and submit a new I/I Control Plan within 6 months of the effective date of the new permit or can they submit the annual update of the current I/I Control Plan by March 31, 2007?

Response B8: The final permit requires that that Spencer submit an Infiltration/Inflow Control Plan within six months of the effective date of the permit and that the plan must address all of the requirements specified in the final permit. Spencer's existing plan may be submitted if it meets these requirements or revised to meet the requirements.

C. Comments Submitted by Andrea F. Donlon, River Steward, Connecticut River Watershed Council

The commenter notes that because the Spencer WWTP discharges near the confluence with the Sevenmile River, it affects the water quality along part of a proposed canoe route, Quaboag River Canoe Trail.

Comment C1: The Fact Sheet associated with this permit was very complete, and contained rationale that is often missing in other Fact Sheets we have reviewed.

Response C1: Comment noted.

Comment C2: We are glad to see that this facility is using ultraviolet radiation treatment for bacteria, given impairments downstream for chlorine and pathogens. The recent bacteria levels shown in the Fact Sheet Attachment 1 indicate that bacteria levels are quite low. Chlorine has been eliminated. We are also pleased to see tertiary treatment through (created) wetland beds. This provides some beneficial groundwater recharge and an extra level of treatment.

Response C2: Comment noted.

Comment C3: We support the addition of *E. coli* testing in addition to fecal coliform testing, in preparation to the proposed changes in the state water quality standards. However, we recommend that *E. coli* testing be done as frequently (at the same time as) fecal coliform.

Response C3: The final permit requires *E. coli* monitoring and includes limits that will become effective in one year from the effective date of the permit (see Response B2). When the *E. coli* limits become effective, the monitoring frequency will increase to 1/week.

Comment C4: Seasonal limits for BOD, TSS, nutrients and dissolved oxygen (DO) should incorporate recreation period of April 1 to October 31 every year.

Response C4: The seasonal limits for these constituents are based on a seasonal period that represents the critical conditions under which these pollutants will have maximum impact on water quality. The selection of the critical period for these parameters is independent of the recreational period because the water quality impacts of concern for these constituents are related to aquatic life health, not recreational use. For example, DO criteria are included in the Massachusetts Water Quality Standards to protect aquatic life. Critical conditions for DO which are impacted by BOD and ammonia occur during warm-weather low-flow conditions when the oxygen carrying capacity of water is at its lowest and when biochemical oxidation and respiration rates (oxygen demand) are highest. During the month of April in Massachusetts, receiving waters typically have higher flow rates (more dilution and faster retention times) and always have cooler temperatures than the warm-weather summer and early fall season. As a result, it is unnecessary to extend these seasonal limits to include April because the impacts to aquatic life from these constituents are significantly less in April than during the low-flow high temperature conditions for which the permit limits were developed.

Comment C5: We support more stringent total phosphorus limits and more frequent testing of total phosphorus as proposed in the draft permit. This is being done as part of a TMDL to reduce nutrient loads in Quaboag Pond, which lies downstream of the Sevenmile River. However, although there are no numerical criteria for total phosphorus, the 1986 Quality Criteria of Water recommends in-stream phosphorus concentrations of 0.1 mg/L for any stream not discharging directly to lakes or impoundments and 0.05 mg/L in any stream entering a lake or reservoir. Given the small dilution factor for Cranberry Brook, the proposed permit limits may not be stringent enough to meet ecoregional recommendations for instream phosphorus in Cranberry Brook. Thus, even more stringent total phosphorus limits may be more appropriate for protection of the receiving waters directly downstream.

Response C5: As indicated in the Fact Sheet, Cranberry Brook and the Sevenmile River are not listed for nonattainment of water quality standards for nutrients, DO, aquatic plants or other indicators of eutrophication. Currently, available information is insufficient to determine whether the rivers are experiencing cultural eutrophication and whether water quality-based phosphorus limits more stringent than needed for Quaboag Pond are warranted at this time. However, EPA acknowledges the unknown status of these receiving waters. During the site visit the permit writer viewed Cranberry Brook in the vicinity of the discharge outfall and its confluence with the Sevenmile River and did not observe any evidence of cultural eutrophication. In any event, the Fact Sheet clearly states that should new water quality information become available or if the state develops water quality criteria that would require more stringent limits, the permit may be re-opened and modified.

Comment C6: The facility has not been complying with its permit limits for copper, nor is it likely to comply with the proposed (less stringent) limits. It is not clear when or how the facility will come into compliance. The permit should establish deadlines for complying with the Clean Water Act.

Response C6: EPA can only establish schedules in permits for new or more stringent permit limitations. However, the Town of Spencer is presently under a administrative order from EPA's Office of Environmental Stewardship (OES) to take steps to address the copper limit violations.

Comment C7: We notice that chronic NOEC and LC50 testing is proposed to be changed from quarterly to twice a year. We would like to see quarterly testing remain in place for this facility, especially given the high copper levels in the discharge.

Response C7: As shown by the WET tests results, the discharge of copper does not appear to be causing either acute or chronic toxicity to the test organisms. (Also, please see Response A5).

Comment C8: The Fact Sheet for this permit acknowledges the Infiltration and Inflow (I/I) problem at this facility. On page 2 of the Fact Sheet, it states that secondary treatment process bypass events occur at the facility due to wet weather conditions that result in high I/I in the collection system. According to the Fact Sheet, there have been four bypass incidents since February of 2003. The draft permit in Section C2 calls for a preventative maintenance program to prevent overflows and bypasses, including an inspection program. Section C3 of the permit calls for an I/I plan to be submitted to EPA and MassDEP within six months of the effective date of the permit. With respect to the bypass issue, there are no deadlines or milestones established in the draft permit. Given the seriousness of the I/I problem at this facility, we request that the final permit set certain conditions and timelines for making bypass events a thing of the past.

Response C8: EPA compliance will review the situation and take appropriate steps to reduce and eventually eliminate the high flow bypasses. The permit does not authorize the bypasses thus their occurrences must be handled by the EPA Enforcement Office.