CITY OF PORTSMOUTH

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June 16, 2017

Ms. Susan Studlien
Director, Office of Environmental Stewardship
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: City of Portsmouth, New Hampshire – Consent Decree 09-cv-283-PB ("CD")

Dear Ms. Studlien:

This letter responds to the EPA's letter received on April 18, 2017, regarding the City's Post-Construction Monitoring Plan/Report (PCMP/R). At the outset, the City appreciates EPA's acknowledgement of the City's substantial investment in infrastructure improvements (over $50 million spent in sewer separation projects alone) to reduce markedly both the number of combined sewer overflow outfalls and the volume of discharges.

The City agrees that additional efforts are to be undertaken to achieve further reductions in combined sewer overflow discharges and that the build and measure approach, which is reflected in the Consent Decree, allows for this ongoing, adaptive process to achieve the goals of the Clean Water Act ("CWA") in accord with EPA's CSO Policy, and applicable federal and state regulations and permits. This build and measure process not only assists in finding the best engineering solutions, but also allows for the continuing engagement of the public as to next steps.

The City provides enclosed the following items:

- Responses to each of the EPA's comments on the PCMP/R
- Revised PCMP/R
- Supplemental Compliance Plan

This City is prepared to continue working with the EPA on the ongoing evolution of the City's wastewater collection and treatment systems.

Sincerely,

Suzanne Woodland, Esq.
Deputy City Attorney

attachments

cc: John P. Bohenko, City Manager
Peter Rice, Director of Public Works
Terry Desmarais, City Engineer
Charles Wilson, Hazen and Sawyer
Mark Pollins, Director of Water Enforcement, USEPA
Joy Hilton, U.S. EPA Region 1
Tracy L. Wood, Wastewater Engineering Bureau Administrator
Alan Brooks, Esq., New Hampshire Department of Justice
Tonia Bandrowicz, Esq., U.S. EPA Region 1
David Gordon, Esq., U.S. Department of Justice
Tom Irwin, Esq., Conservation Law Foundation

ATTACHMENT A: RESPONSES TO EPA COMMENTS ON PCMP

EPA Comment #1

In Table ES-1, Portsmouth summarizes its predicted CSO activation volumes in the 5 years previously selected to represent system "average" performance – these years are 1968, 1988, 1990, and 1993. That table notes a total five-year volume for the South Pond CSOs (10A and 10B) of 5.67 MG, and a total volume of 0.53 MG for CSO 013. Portsmouth notes that the 10A/10B average is therefore 1.1 MG/year for the five years, which is less than the 2010 Report prediction of an average of 2.1 MG per year. Portsmouth also states that the average of 0.1 per year for CSO 013 is really 0 because the one event in those five years occurred during a storm having approximately a 5-year return frequency. Portsmouth's second assertion is inappropriate, as the CSO 013 prediction was presented as 0, not <1 or as 0.1.

City Response

The report was modified to reflect this comment.

EPA Comment #2

In Section 1, Portsmouth notes that it has carried out "flow/water quality monitoring" in developing and implementing its LTCP. As noted above and as discussed below in Comment #13 water quality monitoring results are not presented in this report.

City Response

Water quality monitoring was not performed as part of this Post Construction Monitoring Plan effort. The presumptive method was used as the means to evaluate the effectiveness of the sewer separation construction efforts to date in reducing flow and to validate the flow model. As part of the the Supplemental Compliance Plan water quality monitoring data collection/analysis will be conducted which will inform the Long Term Control Plan (LTCP) update Data will be collected consistent with EPA's CSO Control Policy and as appropriate for the pollutants of concern associated with tidal waters.

EPA Comment #3

In Table 2 of Section 1.1, the City lists seven LTCP separation projects and their completion dates. Completion date is listed simply by year, with the last area (Aldrich) completed in 2015. The City should provide month as well as year of completion for each area – most particularly for the Aldrich Area, as it was completed in the same year (2015) as post construction monitoring was carried out.

City Response

The report table has been modified to include the month of project completion.

EPA Comment #4

Section 1.1 provides a description of each separation area and Figures 2 through 6 provide maps of those areas. The City should clearly cross reference the currently used area names with the Planning Area names used in the 2009 Consent Decree and the First Modification of the Decree. It appears that Court/State is the current State Street Area, and Cass and Aldrich appear to be Islington #1 and #2 respectively. The City should confirm these assumptions in the report. Also, there is an inconsistency in the completion date listed for the Cass Area in Table 2 (2013) and Section 1.1.1 (2014); the City should identify the actual date.

City Response

The table at the top of Figure 2 has been modified to include a column with a Consent Decree project ID. In addition, the date for completion of the Cass Area work has been corrected.

EPA Comment #5

In Section 1.1, the City should discuss whether and in what ways the scopes of these projects changed between their inclusion in the 2009 Consent Decree and actual project completion.

City Response

Figure 2 has been modified to show the original extents of the projects, in addition to the actual extents.

EPA Comment #6

Section 1.2 states that the overall goal of the PCMP/R "is to provide a framework for assessing the performance of collection system infrastructure improvements implemented through 2015. The Consent Decree requires this PCMP to address three objectives:

> *"determine i) whether the LTCP measures, when completed, meet all design criteria and performance criteria specified in the LTCP, ii) whether the Combined Sewer Overflow Facility, and the WWTFs with respect to the treatment of combined sewage, comply with the technology-based and water quality-based requirements of the CWA, the CSO Policy, and all applicable federal and state regulations and permits; and iii) that there are no CSO Discharges."*

The City's statement acknowledges that the Plan/Report only addresses the first of those three requirements. The second and third of those requirements could be satisfied when Portsmouth submits to EPA a Supplemental Compliance Plan for Phase 2 CSO abatement including a proposed implementation schedule within 60 days of receipt of this letter.

City Response

A Supplemental Compliance Plan is provided. The LTCP update will address Clean Water Act requirements and the requirements of the CSO Control Policy.

EPA Comment #7

The City presents a list of temporary and permanent meters in Table 6 (these appear to be the PCMP meters), as well as a map of metering locations in Figure 7 that includes earlier I/I metering locations as well as the PCMP meter locations. In Appendices C and D, the City presents comparative hydrographs of various meter locations for dry and wet weather conditions, respectively. A number of the meter designations presented in the appendices do not correspond to those in the table and figure. The City should use consistent meter designations throughout the report.

City Response

Figure 7 has been modified to match the meter IDs in the appendices.

EPA Comment #8

The report does not discuss the quality and limitations of the rainfall and flow data collected during its brief 12-week post construction monitoring program that occurred in April, May and June of 2015.

City Response

The report has been modified with new language to address this comment in Section 2.2.

EPA Comment #9

In Section 2.3, the City notes that CSO activation data, based upon the CSO's permanent flow meters was used for model verification; however, the report does not provide the results of that verification or discuss the number of activations experienced by each CSO since the separation projects have been completed. The report should present a listing of each such activation, including date, associated storm characteristics (rainfall total, peak intensity, and event duration), discharge volume and duration.

City Response

The report has been modified to include a modeled versus observed CSO event comparison for the 2015 monitoring period in Section 4.4. Also, the requested longer-term CSO summary is included in the Appendix.

EPA Comment #10

Section 3 of the report describes the City's use of its hydraulic model to evaluate the "typical year(s)" performance of its collection system. As noted above, the report provides comparative hydrographs for meter sites under dry weather conditions (i.e., during selected dry periods) as well as for the entire monitoring period (characterized as wet weather conditions). As such, the report fails to provide adequate documentation of the degree of calibration achieved – particularly under wet weather conditions – which are the most critical conditions for combined system performance.

City Response

The report has been modified to include additional statistical calibration comparison plots in the Appendix, consistent with the request in Comment #11.

EPA Comment #11

The report should include the following information in Section 3 and/or in related appendices:

a. Model input parameters pre- and post- recalibration. These should be provided on a catchment basis, and should include catchment areas, RTK factors, D factors (if utilized; however, the report does not discuss their use and so it is assumed they were not employed to adjust R based on initial abstraction use and recovery), as well as groundwater model parameters such as soil porosity, wilting point, field capacity, saturated conductivity, soil tension, etc. The City should also provide a comparison of all final values to generally recommended ranges of those values, to demonstrate that none have been adjusted outside what are generally considered to be "reasonable" ranges.
b. A much more detailed evaluation of model calibration. The report provides a model-to-meter comparison for the individual meters in Table 8 (note: the report incorrectly references Table 7). This comparison is for the total dry and wet weather flow volume at each location over the 12-week monitoring period. Not surprisingly, the percent differences at most locations are low. This is most likely because the comparison is dominated by dry weather flow, which typically is more closely calibrated in a collection system model. The City cites industry calibration standards; however, wet weather standards should be applied on an individual wet weather event-basis, as well as to wet weather overall. In addition, peak flow rate and depth of flow are also used as calibration criteria. In a system that relies on flow reduction via separation and conveyance and treatment to address its CSOs, peak flow is an important calibration criterion.
c. In presenting the above additional statistics, the City should use additional tabular summaries, as well as more detailed event-specific hydrographs and what are known as "45

degree" scatter plots. The latter plot, plot the model value on one axis and the meter value on the other. A perfect match lands on a 45-degree line on the plot.

d. As noted above, the City should also provide a comparison of the model's prediction of CSOs during the monitored events to those measured by the permanent CSO meters.

City Response

a.) The requested "apples-to-apples" comparison of model parameters is not possible. The model was completely updated from the previous version that required proprietary software using outdated modeling methods to generate hydrologic inputs, to the current version that is stand-alone in a single, commercially-available software package, and explicitly includes both hydrology and hydraulics in the same framework. Thus, the model parameter comparison pre- and post- recalibration cannot be performed.

b.) The report has been modified to include additional statistical calibration comparison plots in the Appendix, consistent with the request in Comment #10.

c.) See above response to b).

d.) The report has been modified to include a modeled versus observed CSO event comparison for the 2015 monitoring period in Section 4.4, consistent with the request in Comment #9.

EPA Comment #12

The City notes in Section 1 that among its CSO control efforts it has carried out water quality monitoring. If any such monitoring has been carried out post-construction, the results should be presented herein. If not, an appropriate program of water quality monitoring should be carried out, and its results used to evaluate the degree to which the second CD-stated objective has been satisfied. An appropriate water quality monitoring program would be expected to include bacteria (fecal coliform or E. coli), nitrogen species, phosphorus, and dissolved oxygen. If non-compliance with water quality standards and/or non-attainment of designated uses is identified, use of a water quality model to evaluate the City's contribution to such non-compliance and non-attainment may be appropriate. This activity could be included in the City's Supplemental Compliance Plan for Phase 2 CSO abatement including a proposed implementation schedule that is to be submitted within 60 days of receipt of this letter.

City Response

Water quality monitoring was not performed as part of this Post Construction Monitoring Plan effort. The presumptive method was used as the means to evaluate the effectiveness of the sewer separation construction efforts to date in reducing flow and to validate the flow model. As part of the Supplemental Compliance Plan, water quality monitoring data collection/analysis will be conducted which will inform the Long Term Control Plan (LTCP) update. Data will be collected consistent with EPA's CSO Control Policy and as appropriate for the pollutants of concern associated with tidal waters.