



State of New Jersey

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September 10, 2019

Frank Pestana, Executive Director
North Bergen Municipal Utilities Authority
6200 Tonnelle Avenue
North Bergen, NJ 07047

Alberto Cabrera, Town Clerk
Town of Guttenberg
6808 Park Avenue
Guttenberg, NJ 07093

Re: Review of Development and Evaluation of Alternatives Report
North Bergen Municipal Utilities Authority, NJPDES Permit No. NJ0029084
Town of Guttenberg, NJPDES Permit No. NJ0108715

Dear Permittees:

Thank you for your submission to the New Jersey Department of Environmental Protection (the Department or NJDEP) dated June 2019 which contains the “Development and Evaluation of Alternatives Regional Report” (hereafter “the report”). This report was submitted in a timely manner and was prepared in response to Part IV.D.3.v of the above referenced NJPDES permits. The report is part of the development of the Long-Term Control Plan (LTCP) submittal requirements, of which the next deliverable is due on June 1, 2020.

The overall objective of the Development and Evaluation of Alternatives Report is to develop and evaluate a range of CSO control alternatives that meet the requirements of the Federal CSO Control Policy Section II.C.4, N.J.A.C. 7:14A-11, Appendix C, and the USEPA Combined Sewer Overflows Guidance for Long-Term Control Plan (EPA 832-B-95-002). Such evaluation shall include a range of CSO control alternatives for eliminating, reducing, or treating CSO discharge events. This subject report builds on other previously submitted LTCP reports referenced in Part IV.D.3.b of the NJPDES permit, which includes an approved hydrologic, hydraulic and water quality model and other information in the June 2018 “System Characterization Report” (approved by the Department on April 12, 2019); the June 30, 2018 “NJCSO Group Compliance Monitoring Program Report” (approved by the Department on March 1, 2019); the June 2018 “Public Participation Process Report” (approved by the Department on March 29, 2019); and the June 2018 “Identification of Sensitive Areas Report” (approved by the Department on April 8, 2019).

This subject letter serves to provide a response to the Development and Evaluation of Alternatives Report.

As per Part IV.G.4.e.i – vii of the above referenced NJPDES permits, the Development and Evaluation of Alternatives for the LTCP shall include, but not be limited to, an evaluation of the following CSO control alternatives:

- i. Green infrastructure.
- ii. Increased storage capacity in the collection system.
- iii. Sewage Treatment Plant (STP) expansion and/or storage at the plant while maintaining compliance with all permit limits.
- iv. Inflow and Infiltration (I/I) reduction to meet the definition of non-excessive infiltration and non-excessive inflow as defined in N.J.A.C. 7:14A-1.2 in the entire collection system that conveys flows to the treatment works.
- v. Sewer separation.
- vi. Treatment of the CSO discharge.
- vii. CSO related bypass of the secondary treatment portion of the STP in accordance with N.J.A.C. 7:14A-11.12 Appendix C, II C.7.

The permittees cover a range of CSO Control Alternatives within the report, of which several are presented in Table D-1 (Woodcliff STP Sewershed Alternatives). A general overview of the information provided for the CSO control alternatives, as provided in response to Part IV.G.4.e, can be summarized below where the Department's comments follow:

- A variety of **Green Infrastructure** (GI) technologies were discussed, including green roofs, zoning to incentivize green roofs, pervious concrete, rain gardens, right-of-way bioswales, porous asphalt, permeable interlocking concrete pavers, planter boxes, and rain barrels. In Section D.2.1.6, NBMUA Woodcliff eliminated green roofs “because of the high cost and low implementation feasibility in a densely populated area” and looked at “managing 1” of runoff generated by 5% and 10% of the impermeable surface in the Township of North Bergen portion of the Woodcliff STP service area with pervious concrete.” In the screening process described in Section C of Appendix B, the Town of Guttenberg considered the following: Green roofs, including zoning changes to encourage green roofs on an estimated total of 5-10% of the newly zoned area; permeable pavement; planter boxes; and rain barrels.
- The report describes **Infiltration/Inflow (I/I)** reduction as having a minor impact on CSO performance. NBMUA Woodcliff evaluated 10% and 50% of I/I reduction as shown in Table D-1. As stated on page 108, “However, the benefit of this control is minimal in terms of CSO volume and frequencies...and will not be considered further.” For the Town of Guttenberg, as stated on page 138, “it is assumed that the I/I originating in the Town-owned lines will be reduced by approximately 25% (100,000 gallons per day). Several lines have already been designated (through an Administrative Consent Order with EPA) for I/I mitigation.” The Town of Guttenberg’s I/I reduction work is ongoing as part of a five-year plan through 2024.
- **Sewer separation** is the conversion of a Combined Sewer System into a system of separate storm sewers and sanitary sewers. Full sewer separation to achieve zero overflow events was considered by both permittees. Partial sewer separation for the Town of Guttenberg was considered for the proposed construction of new high-rise buildings, as well as for the existing Galaxy Towers. As stated on page 79, although “...the Galaxy Towers existing connection to the collection system does not impact the number of CSO events in the system, it can increase the volume of discharge.” As noted in Table D-8, partial sewer separation of the Galaxy Towers is underway.
- Peracetic Acid (PAA) with Flex Filter is also shown in Table D-6 for **treatment of CSO discharge**. As shown in Appendix A, Table C-1, screens and trash racks; netting; baffles; and high rate physical/chemical treatment (High Rate Clarification Process – Actiflo) is recommended for the

alternatives evaluation for NBMUA. As shown in Appendix B, Table C-3, aside from netting which only addresses floatables, the Town of Guttenberg is not recommending treatment of CSO discharge for further alternatives analysis.

- The Woodcliff STP is operated by NBMUA and has a rated capacity of 2.91 million gallons per day (MGD) with a wet weather capacity of 8 MGD. The plant is being upgraded to replace the secondary Lamella clarifiers with a membrane filtration system. The new membrane system will be sized to allow **expansion of the STP** for a dry weather flow of 3.46 MGD; however, wet weather treatment will remain at the existing capacity of 8 MGD. The addition of 2 MGD of wet weather capacity as **CSO-related interim bypass** will bring total wet weather capacity from 8 MGD to 10 MGD.

Specific Comments

Comment 1

The Department acknowledges that the permittees are working cooperatively to submit a single LTCP for the hydraulically connected system, in keeping with the notes and definitions in Part IV of the NJPDES permit, whereby the hydraulically connected system is defined as, “The entire collection system that conveys flows to one Sewage Treatment Plan (STP)...” The definition of hydraulically connected system allows the permittee to “segment a larger hydraulically connected system into a series of smaller inter-connected systems.” However, it is unclear in the report whether the former or latter part of the definition is the intent of the permittees. For example, Table D-1 implies that the hydraulically connected system is being segmented according to permittee (i.e., NBMUA Woodcliff and Town of Guttenberg) whereas the System Characterization Report defines the hydraulically connected system as one system as shown by the percent capture on Table I-9. Please clarify whether or not the permittees are proposing to segment the hydraulically connected system and ensure that Table D-1 reflects this more clearly.

Comment 2

This report did not explicitly select either the Presumption or Demonstration Approach for each hydraulically connected system; however, the permittee did provide information in support of the Presumption Approach in Section A.8.6 and other portions of the report. The Department acknowledges that the report states, “The Alternatives Evaluation Approach (either Presumption or Demonstration) will be selected when identifying the selected controls for implementation and will be presented in the subsequent Selection and Implementation of Alternatives Report in the Final LTCP.” While this comment does not necessitate a response at this time, a final selection is required to be made in the ‘Selection and Implementation of Alternatives’ report as part of the LTCP submission due on June 1, 2020.

Comment 3

Given the references to percent capture throughout the report (e.g. Section D.1 (Development and Evaluation of Alternatives); Section D.2.1.1 (North Bergen Municipal Utility Authority Controls; and Section D.2.2 (Town of Guttenberg Controls)), please provide the percent capture equation utilized to calculate any baseline and other percent capture values for each hydraulically connected system for report completeness.

Comment 4

The permittees presented present worth value costs, capital costs and/or annualized costs in relation to various alternatives according to the implied Presumption Approach criteria. While the Department

acknowledges that these analyses are provided within the report, please note that the Department is not commenting on cost/performance considerations at this time and will defer its comments as part of the LTCP submission.

Comment 5

A discussion of public participation and the CSO supplemental team is included in Section C.2.2.2 (Public Outreach Program) and Section D.1.5 (Public Input). As per Part IV.G.2 of the NJPDES CSO permit, public participation shall actively involve the affected public throughout each of the three steps of the LTCP process including the Development and Evaluation of Alternatives phase. The Department acknowledges that a listing of meetings and agendas for the CSO Supplemental Team, as well as a discussion of other public outreach, is included in your Public Participation Process Report dated June 2018. Please amend Section D.1.5 of this subject report with a brief summary of subsequent public participation activities as well as meeting dates specific to the development and evaluation of alternatives including a general overview of feedback on any alternatives presented that are specific to North Bergen and Guttenberg.

Moving forward, public participation is a required element of the ‘Selection and Implementation of Alternatives’ for the LTCP. Continued public participation must be provided to garner public input regarding CSO control alternatives where a description of such activities must be included in the LTCP. The discussion should include a description of the public participation activities that occurred during the development of these reports, the feedback opportunities provided, and how feedback was considered. It is also recommended that members of the CSO Supplemental Team be provided a copy of the LTCP in advance of the June 1, 2020 due date to the Department.

Comment 5

In Section C.2.5 (Green Infrastructure) a variety of GI measures are described including green roofs, blue roofs, rainwater harvesting, permeable pavement, planter boxes, bioswales, and freeform rain gardens. Note that in order to ensure that any volumetric credit is given towards overall CSO reduction goals, any GI projects must have a quantitative metric such as an associated volume reduction in gallons diverted from the combined sewer system.

Given the high population density and limited open space, the Department acknowledge the Town of Guttenberg’s consideration of zoning incentives to encourage green roofs, as a subset of the GI alternative. Rain barrels are considered by the Town of Guttenberg for mitigating CSOs. If the Presumption Approach with the criterion of percent capture by volume is guiding the final selection, clarify how the definition of hydraulically connected system is being applied to percent capture, as it relates to the discussion on rain barrels. See **Comments 1, 2, and 3**.

The Department acknowledges that, due to the “relatively small impact achievable with GI”, NBMUA Woodcliff made a conservative assumption that additional impacts of GI would be considered during the final selection of alternatives. The Town of Guttenberg does not appear to make a similar statement. Please clarify whether this statement applies consistently to both permittees. Note that an estimation of CSO volume reduction, as well as any associated reduction in frequency and duration, would also be required for any GI alternatives selected as part of the LTCP, in addition to any resulting effect on percent capture.

Comment 6

Analysis and discussion (including the final selected approach and associated criterion; also see **Comments 1, 2 and 3**) regarding the additional 2 MGD wet weather bypass should be separated from other alternatives,

including STP expansion. This necessitates revision to Table D-1 and Table D-4, as well as other portions of the report. While it is understood that the interim bypass is being constructed at the same time as the STP upgrades, separation of the alternatives within the discussion and tables is appropriate, because interim bypass is an alternative which requires further justification if it is to remain as a permanent alternative. In short, the impacts of interim bypass must be presented separately from, and not confounded with, other alternatives. Also see **Comment 10**.

Comment 7

The reference on page 110 within Section D.2.1 (Controls) to pumping the stored CSO to the “PVSC” treatment plant during dry weather appears to be in error as this tank would likely be hydraulically connected to NBMUA. Another reference to treatment at PVSC (which may be erroneous) is included on page 94 with respect to conveyance.

If storage is being considered, please provide information regarding potential siting locations as well as a description of whether or not any potential storage tanks would be surface or subsurface. If subsurface, whether consideration has been given to any amenities such as parks, parking or GI. Finally, please provide discussion as to whether or not the NBMUA plant could handle additional flows held in storage tanks.

Comment 8

The report discusses treatment of CSO discharge with disinfection, namely with peracetic acid (PAA); however, consistent with the Federal CSO Control Policy Section II.C.4.a (Presumption), minimum treatment requires primary clarification, plus solids and floatables disposal, prior to the addition of disinfection. While FlexFilter is shown on Table D-6 (CSO Control Alternatives Costs Summary) for NBMUA, the Department requests discussion on how CSO treatment will meet minimum treatment requirements, which also includes primary clarification, plus solids and floatables disposal.

The Town of Guttenberg notes the following regarding CSO treatment: “Given the fact that this technology does not reduce the number or the volume of overflow events in the system, and the fact that the receiving water already meets targets for bacteriological contamination, this technology does not provide a significant benefit to the system and will not be considered for further evaluation.” This comment implies selection of the Demonstration Approach for this alternative, whereas there are indications elsewhere in the report that the Presumption Approach might be selected for other alternatives. See **Comments 1 and 2**. If both permittees are part of the same hydraulically connected system, then the treatment of CSO discharge described by NBMUA is inferred to apply to the entire system, including Guttenberg, under a uniform approach; however, if the systems are segmented, corresponding to each permittee, then additional details regarding the analyses and determination as to how Guttenberg “...already meets targets for bacteriological contamination...” must be provided.

Comment 9

Baseline conditions should reflect the conditions prior to the implementation of any and all CSO control alternatives, which are yet to be selected in the next LTCP report. Please correct the terminology to distinguish between typical year conditions versus baseline conditions versus future conditions throughout the report. In particular, the report states that baseline conditions include the assumption that Woodcliff STP will undergo an upgrade, of which the impacts of the STP upgrade need to be distinguished from the impacts of interim bypass, because interim bypass is an alternative which requires further justification if it is to remain as a permanent alternative.

Comment 10

Throughout the report the year 2004 is utilized for definition of baseline and for the design of potential CSO control alternatives. In accordance with the Federal CSO Control Policy, the assessment of system-wide CSO control alternatives is required to be based on an “average” or “typical” rainfall year. As stated within the May 2018 report entitled “Typical Hydrological Year Report”, 2004 was selected as the typical hydrological year. While a long term precipitation data set (i.e. greater than 30 years) was considered as part of this analysis, a more recent period was used in the ultimate selection of 2004 in order to consider local climate change. While use of the year 2004 does consider climate change, please be sure to consider resiliency requirements in the design of any infrastructure (e.g., storage and satellite treatment). Specifically, in accordance with the provisions of Executive Order 11988, the USEPA and the New Jersey Water Bank require that funded infrastructure be located outside of floodplains or elevated above the 500-year flood elevation. Where such avoidance is not possible, the following hierarchy of protective measures has been established:

1. Elevation of critical infrastructure above the 500-year floodplain;
2. Flood-proofing of structures and critical infrastructure;
3. Flood-proofing of system components.

While this comment does not necessitate a response at this time, these protective measures should be a consideration in the LTCP.

Please incorporate these changes to the report and submit a revised version to the Department no later than 45 days from the date of this letter. Thank you for your continued cooperation.

Sincerely,



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