



## COUNTY OF ERIE

DANIEL CASTLE, AICP  
COMMISSIONER

DEPARTMENT OF ENVIRONMENT & PLANNING  
DIVISION OF SEWERAGE MANAGEMENT

JOSEPH FIEGL, P.E., BCEE  
DEPUTY COMMISSIONER

January 16, 2026

James J. Eldred  
New York Department of Environmental Conservation (NYSDEC)  
625 Broadway  
Albany, New York 12233

Re: Draft State Pollutant Discharge Elimination System (SPDES) Permit NY0095401  
Erie County Sewer District (ECSD) No. 3  
Application ID: 9-1448-00012/00004

Dear Mr. Eldred:

The Erie County Department of Environment and Planning – Division of Sewerage Management (Erie County) is in receipt of your December 9, 2025 correspondence indicating the NYSDEC's intent to renew and modify SPDES Permit NY0095401 for the ECSD No. 3 Southtowns Water Resource Recovery Facility (Southtowns WRRF or Southtowns Facility). The purpose of this letter is to present a written statement that SPDES Permit NY0095401 should not be modified as proposed. Erie County's questions and comments on the proposed modified/draft permit are as follows:

- 1) General: Erie County submitted a memorandum titled "Addendum to Phase 2 Expansion Basis of Design Report Determination of Maximum Month Flow and Appropriate Dilution Factors" (JM Davidson Engineering, DPC, July 2025 – hereinafter referred to as the "July 2025 memorandum") indicating the dilution factors to be applied should be 29:1 for a flow rate of 26 million gallons per day (MGD) and 19:1 for 46 MGD. These dilution factors were based, in part, on the outfall improvements recently implemented as part of Phase 1 of the Southtowns Advanced Wastewater Treatment Facility Expansion Project ("Southtowns Expansion Project"). It is requested that all draft SPDES permit limits utilizing dilution factors in their calculations be adjusted to reflect the values from the July 2025 memorandum. Justification for utilizing the dilution factors from the July 2025 memorandum, in lieu of those utilized by the NYSDEC in developing this draft permit, is included in Attachment A.
- 2) Page 4, Outfall 001 – Existing: the header "PERMIT LIMITS, LEVELS AND MONITORING – OUTFALL 001 – EXISTING", currently on bottom of Page 4, should be moved to Page 5.
- 3) Page 5, Outfall 001 – Existing: the expiring date of 8/31/29 is not attainable due to delays/requirements associated with the SPDES permit modification process and the anticipated construction duration for Phase 2 of the Southtowns Expansion Project. It is requested that the "8/31/2029" expiring date be changed to denote "Footnote #2", with a new footnote added to this table stating: "2. The limits presented expire upon Department acceptance of the Certificate of Substantial Completion and completion of the commissioning of the new Phase II systems by the accepted enforceable date, as required in the Schedule of Compliance." Please see Comment #37 for more details.

- 4) Page 5, Outfall 001 – Existing: pH, BOD<sub>5</sub>, TSS, and settleable solids parameters are duplicative with Outfall 003 when Outfall 002 is not active. It is requested a new footnote be added to these parameters stating the following: “Permittee may use the Outfall 003 sample results when Outfall 002 is not active.”
- 5) Page 6, Outfall 001 – Expanded: the effective date of 9/1/29 is not attainable due to delays/requirements associated with the SPDES permit renewal process and the anticipated construction duration for Phase 2 of the Southtowns Expansion Project. It is requested that the “9/1/2029” effective date be changed to denote “Footnote #2”, with a new footnote added to this table stating: “2. The limits presented become effective upon Department acceptance of the Certificate of Substantial Completion and completion of the commissioning of the new Phase II systems by the accepted enforceable date, as required in the Schedule of Compliance.” Please see Comment #37 for more details.
- 6) Page 6, Outfall 001 – Expanded: the proposed 46 MGD flow limit will need to be discussed depending on the request made in Comment #1 regarding dilution factors. Erie County recommended the 46 MGD flow rate based on an analysis of various permit parameters and the dilution factors established in the July 2025 memorandum. A lower flow limit may be required should the July 2025 memorandum dilution factors not be used, which would impact numerous parameters in this draft permit beyond those listed in this comment letter.
- 7) Page 6, Outfall 001 – Expanded: pH, BOD<sub>5</sub>, TSS, and settleable solids parameters are duplicative with Outfall 003 when Outfall 002 is not active. It is requested a new footnote be added to these parameters stating the following: “Permittee may use the Outfall 003 sample results when Outfall 002 is not active.”
- 8) Page 7, Outfall 002: it is requested that pH and total residual chlorine sampling/testing be eliminated. All flows from Outfall 002 are captured in Outfall 003 and hence would be included in those sampling results.
- 9) Page 7, Outfall 002: it is requested that Footnote 1 be modified. The 26 MGD - Existing and 46 MGD - Expanded flow rates are monthly averages. Diversion to the ORF, however, will occur based on instantaneous flows and the hydraulic capacity of the secondary treatment system. Therefore, it is requested that the text “(26 MGD - Existing and 46 MGD - Expanded)” be deleted from Footnote 1.
- 10) Page 8, Outfall 003 – Existing: the expiring date of 8/31/29 is not attainable due to delays/requirements associated with the SPDES permit and the anticipated construction duration for Phase 2 of the Southtowns Expansion Project. It is requested that the “8/31/2029” expiring date be changed to denote “Footnote #10”, with a new footnote added to this table stating: “10. The limits presented expire upon Department acceptance of the Certificate of Substantial Completion and completion of the commissioning of the new Phase II systems by the accepted enforceable date, as required in the Schedule of Compliance.” Please see Comment #37 for more details.
- 11) Page 8, Outfall 003 – Existing: as noted in Comment #4, pH, BOD<sub>5</sub>, TSS, and settleable solids parameters are duplicative with Outfall 001 when Outfall 002 is not active. It is requested the following footnote be added to these parameters: “Permittee may use the Outfall 001 sample results when Outfall 002 is not active.”
- 12) Page 12, Outfall 003 – Expanded: the fact sheet notes the 19 milligrams per liter (mg/L) as ammonia-nitrogen (NH<sub>3</sub>-N) limit has been established due to “Antibacksliding”. Erie County’s interpretation of the regulations is that “antibacksliding” does not apply in this instance and the limitations in the draft permit should be updated. The justification is as follows:
  - a) The current (2012) SPDES permit limitations for ammonia have not become final. The Southtowns Facility continues to remain in a “monitor” status for ammonia until completion of Phase 2 of the Southtowns Expansion Project.
  - b) The Ammonia limits in the draft permit should use new dilution factors, as alterations to the permitted facility occurred after issuance of the last permit, and that justifies the application of updated effluent

- limitations. The alterations to the permitted facility were upgrades to the outfall diffusers, constructed as part of Phase 1 of the Southtowns Expansion Project.
- i) A January 4, 2017 approval letter for the Southtowns Facility Ammonia Study noted that the NYSDEC agreed “with your [Erie County’s] conclusion that the County pursues a seasonal ammonia limit with the NYSDEC; and that the County construct outfall improvements to meet the final effluent limitation.”
  - ii) The recommendation in the NYSDEC approved Facilities Plan to meet future ammonia limitations was based on permit limitations being adjusted to account for re-calculated dilution factors. The NYSDEC endorsed this approach in its February 18, 2020 approval letter for the Facilities Plan, noting the collaboration between the NYSDEC and Erie County to evaluate the dilution factors to account for the diffuser modifications. Erie County has proceeded with this understanding in good faith ever since.
- c) The calculated 22.5 mg/L (as ammonia, NH<sub>3</sub>) limit in the current (2012) SPDES permit, which would become final after completion of the Southtowns Expansion Project, is equivalent to the proposed 19 mg/L (as NH<sub>3</sub>-N) limit in this draft permit. The 22.5 mg/L calculation used a 15:1 dilution factor and a water quality standard of 1.5 mg/L (as NH<sub>3</sub>, based on a pH of 7.5 and temperature of 25°C). The updated CORMIX modeling summarized in the July 2025 memorandum used the outfall configuration approved by the NYSDEC (and subsequently constructed during Phase 1 of the Southtowns Expansion Project) to determine what Erie County contends are the appropriate dilution factors for this draft permit. Please see Comment #1.
  - d) The appropriate Nov. 1st – May 31st permit limitations also need to be implemented in the draft permit. The previously referenced January 4, 2017 approval letter from the NYSDEC for the Southtowns Facility Ammonia Study noted that “we [the NYSDEC] agree with your [Erie County’s] conclusion that the County pursues a seasonal ammonia limit”, further stating “a winter season Ammonia limitation of 28 mg/L could be imposed” should a permit modification be pursued (note – the 28 mg/L figure was based on estimated dilution factors at that time). Using the pH of 7.5 and temperature of 10°C referenced in the fact sheet for Nov. 1st – May 31st, the water quality standard per TOGS 1.1.1 would be 2.2 mg/L as NH<sub>3</sub> or 1.8 mg/L as NH<sub>3</sub>-N. The water quality standard would be multiplied by the respective dilution factor to determine the permit limitations.
- 13) Page 8, Outfall 003 – Existing: the draft permit limitation for phenolics is based upon the water quality standard of 1.0 micrograms per liter (ug/L) multiplied by the NYSDEC’s dilution factor of 24:1. Erie County requests the proposed phenolics limits be updated/adjusted based on the dilution factors from the July 2025 memorandum. Please see Comment #1.
- 14) Page 8, Outfall 003 – Existing: Erie County requests the proposed cyanide limits be corrected using the current (2012) SPDES permit limitation for Outfall 001, based on the following reasons:
- a) The permit data fact sheet notes limits for current (2012) SPDES permit Outfalls 001 and 002 are proposed to be applied in the draft SPDES permit at Outfall 003.
  - b) Current (2012) SPDES limits for Outfall 003 only apply during the limited times of ORF discharge, while current (2012) SPDES permit limits for Outfall 001 apply at all other times.
  - c) Reviewing the fact sheet for the current (2012) SPDES permit, it appears the current (2012) SPDES Outfall 003 cyanide limit of 50.6 ug/L was in error as Erie County cannot determine how it was calculated or why it should differ from the current (2012) SPDES Outfall 001 limitation. Note all other parameters for Outfalls 001 and 003 in the current (2012) SPDES permit are the same (with appropriate conversions).
  - d) As noted above, Erie County cannot determine the scientific basis for the current (2012) SPDES Outfall 003 cyanide limit. Erie County was able to determine the scientific basis for the current (2012) SPDES Outfall 001 limit for cyanide. The daily maximum of 10.5 lbs/day equates to approximately 78 ug/L, which was established based on an ambient criterion of 5.2 ug/L and a dilution factor of 15:1.
  - e) The same ambient criterion of 5.2 ug/L was noted in the fact sheet for the draft SPDES permit. The calculated water quality based effluent limit (WQBEL) for this parameter was 125 ug/L, or 5.2 ug/L multiplied by the NYSDEC’s dilution factor of 24:1. Erie County requests the proposed cyanide limits be

updated/adjusted based on the ambient criterion of 5.2 ug/L and the July 2025 memorandum dilution factors. Please see Comment #1, as well as the discussions in Comment #12 regarding “antibacksliding”.

- 15) Page 8, Outfall 003 – Existing: Erie County requests total dissolved solids monitoring be eliminated. This is a new monitoring parameter, yet there is no reasonable potential of exceeding the water quality standard noted in the draft fact sheet. Further, the fact sheet states the schedule of submittals has additional information, but total dissolved solids was not listed in that schedule in the draft permit. Total Dissolved Solids sampling/testing will be part of the biennial pollutant scans.
- 16) Page 9, Outfall 003 – Existing: Erie County requests the proposed total residual chlorine limits be updated based on the dilution factors from the July 2025 memorandum. The 0.375 mg/L limit in the current (2012) SPDES permit was determined by multiplying the water quality standard of 5 ug/L by a decay factor of 5 and a 15:1 dilution factor. Please see Comment #1, as well as the discussions in Comment #12 regarding “antibacksliding”.
- 17) Page 9, Outfall 003 – Existing: Erie County requests the proposed WET testing action levels be updated based on the dilution factors from the July 2025 memorandum. Please see Comment #1. Footnote 8 on Page 10 would need to be updated as well. Finally, Erie County has concerns about conducting WET testing during the winter as Lake Erie often freezes and hence it would be difficult and/or dangerous to collect the lake samples needed.
- 18) Pages 10-11, Outfall 003 – Existing: Erie County has installed a new Outfall 001 sampling location as part of Phase 1 of the Southtowns Expansion Project. For redundancy and operational flexibility, Erie County requests the option to utilize this sampling location for Outfall 003 when Outfall 002 is not active. To implement in the draft permit, it is requested a footnote be added stating the following: “Permittee may use the Outfall 001 sampling location for all Outfall 003 testing when Outfall 002 is not active.”
- 19) Page 10, Outfall 003 – Existing: Erie County requests Footnote 5 be modified as follows (requested changes in **bold/underlined**): “Biennial Pollutant Scan: The permittee shall perform effluent sampling ~~every two (2) years during calendar years ending in 1, 3, 5, 7, and 9~~ for all applicable pollutants identified in the NY-2A Application, Tables A - D, **as available on the Department’s website at the time of the sampling.** Sampling data shall be collected according to the guidance in the NY-2A application and maintained by the permittee. Monitoring results shall not be submitted on the DMR. Data shall be submitted with the next submission of the NY-2A form.” This would provide clarity regarding when the sampling must occur, and also account for periodic updates made by the NYSDEC for Tables A-D. Erie County would have no objection if the NYSDEC preferred even years to be sampled as opposed to odd years.
- 20) Page 11, Outfall 003 – Existing: Erie County requests Footnote 9 be modified as follows (requested changes in **bold/underlined**): “The permittee shall conduct a Bacterial Assessment Study (BAS) for Escherichia coli (E. coli). The permittee will conduct a side-by-side analysis of fecal coliform and E. coli for a period of two recreational seasons. See information in the Schedule of Compliance and the Schedule of Submittals. **No further sampling or testing beyond the two recreational seasons will be required should the BAS indicate no action is required to comply with E.coli water quality standards.**” This would eliminate the need to submit a permit modification request.
- 21) Page 12, Outfall 003 – Expanded: the effective date of 9/1/29 is not attainable due to delays/requirements associated with the SPDES permit and the anticipated construction duration for Phase 2 of the Southtowns Expansion Project. It is requested that the “9/1/2029” effective date be changed to denote “Footnote #10”, with a new footnote added to this table stating: “10. The limits presented become effective upon Department acceptance of the Certificate of Substantial Completion and completion of the commissioning of the new Phase II systems by the accepted enforceable date, as required in the Schedule of Compliance.” Please see Comment #37 for more details.

- 22) Page 12, Outfall 003 – Expanded: as noted in Comment #4, pH, BOD<sub>5</sub>, TSS, and settleable solids parameters are duplicative with Outfall 001 when Outfall 002 is not active. It is requested the following footnote be added to these parameters: “Permittee may use the Outfall 001 sample results when Outfall 002 is not active.”
- 23) Page 12, Outfall 003 – Expanded: the fact sheet notes the 19 milligrams per liter (mg/L) as NH<sub>3</sub>-N limit has been established due to “Antibacksliding”. Erie County’s interpretation of the regulations is that “antibacksliding” does not apply in this instance and the limitations in the draft permit should be updated. The justification is as follows:
- a) The current (2012) SPDES permit limitations for ammonia have not become final. The Southtowns Facility continues to remain in a “monitor” status for ammonia until completion of Phase 2 of the Southtowns Expansion Project.
  - b) The Ammonia limits in the draft permit should use new dilution factors, as alterations to the permitted facility occurred after issuance of the last permit, and that justifies the application of updated effluent limitations. The alterations to the permitted facility were upgrades to the outfall diffusers, constructed as part of Phase 1 of the Southtowns Expansion Project.
    - i) A January 4, 2017 approval letter for the Southtowns Facility Ammonia Study noted that the NYSDEC agreed “with your [Erie County’s] conclusion that the County pursues a seasonal ammonia limit with the NYSDEC; and that the County construct outfall improvements to meet the final effluent limitation.”
    - ii) The recommendation in the NYSDEC approved Facilities Plan to meet future ammonia limitations was based on permit limitations being adjusted to account for re-calculated dilution factors. The NYSDEC endorsed this approach in its February 18, 2020 approval letter for the Facilities Plan, noting the collaboration between the NYSDEC and Erie County to evaluate the dilution factors to account for the diffuser modifications. Erie County has proceeded with this understanding in good faith ever since.
  - c) The calculated 22.5 mg/L (as NH<sub>3</sub>) limit in the current (2012) SPDES permit, which would become final after completion of the Southtowns Expansion Project, is equivalent to the proposed 19 mg/L (as NH<sub>3</sub>-N) limit in this draft permit. The 22.5 mg/L calculation used a 15:1 dilution factor and a water quality standard of 1.5 mg/L (as NH<sub>3</sub>, based on a pH of 7.5 and temperature of 25°C). The updated CORMIX modeling summarized in the July 2025 memorandum used the outfall configuration approved by the NYSDEC (and subsequently constructed during Phase 1 of the Southtowns Expansion Project) to determine what Erie County contends are the appropriate dilution factors for this draft permit. Please see Comment #1.
  - d) The appropriate Nov. 1st – May 31st permit limitations also need to be implemented in the draft permit. The previously referenced January 4, 2017 approval letter from the NYSDEC for the Southtowns Facility Ammonia Study noted that “we [the NYSDEC] agree with your [Erie County’s] conclusion that the County pursues a seasonal ammonia limit”, further stating “a winter season Ammonia limitation of 28 mg/L could be imposed” should a permit modification be pursued (note – the 28 mg/L figure was based on estimated dilution factors at that time). Using the pH of 7.5 and temperature of 10°C referenced in the fact sheet for Nov. 1st – May 31st, the water quality standard per TOGS 1.1.1 would be 2.2 mg/L as NH<sub>3</sub> or 1.8 mg/L as NH<sub>3</sub>-N. The water quality standard would be multiplied by the respective dilution factor to determine the permit limitations.
- 24) Page 12, Outfall 003 – Expanded: the draft permit limitation for phenolics is based upon the water quality standard of 1.0 micrograms per liter (ug/L) multiplied by the NYSDEC’s dilution factor of 16:1. Erie County requests the proposed phenolics limits be updated/adjusted based on the dilution factors from the July 2025 memorandum. Please see Comment #1.
- 25) Page 12, Outfall 003 – Expanded: Erie County requests the proposed cyanide limits be corrected using the current (2012) SPDES permit limitation for Outfall 001, based on the following reasons:
- a) The permit data fact sheet notes limits for current (2012) SPDES permit Outfalls 001 and 002 are proposed to be applied in the draft SPDES permit at Outfall 003.

- b) Current (2012) SPDES limits for Outfall 003 only apply during the limited times of ORF discharge, while current (2012) SPDES permit limits for Outfall 001 apply at all other times.
  - c) Reviewing the fact sheet for the current (2012) SPDES permit, it appears the current (2012) SPDES Outfall 003 cyanide limit of 50.6 ug/L was in error as Erie County cannot determine how it was calculated or why it should differ from the current (2012) SPDES Outfall 001 limitation. Note all other parameters for Outfalls 001 and 003 in the current (2012) SPDES permit are the same (with appropriate conversions).
  - d) As noted above, Erie County cannot determine the scientific basis for the current (2012) SPDES Outfall 003 cyanide limit. There is a scientific basis for the current (2012) SPDES Outfall 001 limit for cyanide. The daily maximum of 10.5 lbs/day equates to approximately 78 ug/L, which was established based on an ambient criterion of 5.2 ug/L and a dilution factor of 15:1.
  - e) The same ambient criterion of 5.2 ug/L was noted in the fact sheet for the draft SPDES permit. Erie County requests the proposed cyanide limits be updated/adjusted based on the ambient criterion of 5.2 ug/L and the July 2025 memorandum dilution factors. Please see Comment #1, as well as the discussions in Comment #12 regarding “antibacksliding”.
- 26) Page 12, Outfall 003 – Expanded: Erie County requests total dissolved solids monitoring be eliminated. This is a new monitoring parameter, yet there is no reasonable potential of exceeding the water quality standard noted in the draft fact sheet. Further, the fact sheet states the schedule of submittals has additional information, but total dissolved solids was not listed in that schedule in the draft permit. Total Dissolved Solids sampling/testing will be part of the biennial pollutant scans.
- 27) Page 12, Outfall 003 – Expanded: Erie County requests the proposed nitrite limit be eliminated and returned to ‘monitor’. A multiplier of 1.6 was used when determining if there is a reasonable potential to exceed the water quality standard based on 12 data points; however, there are double the number of available data points when considering Outfalls 001 and 003. Therefore, a lower multiplier based on 24 data points should be used. Additionally, the calculations were not based on the dilution factors from the July 2025 memorandum. Please see Comment #1.
- 28) Page 13, Outfall 003 – Expanded: Erie County requests the proposed total residual chlorine limits be updated based on the dilution factors from the July 2025 memorandum. The 0.375 mg/L limit in the current (2012) SPDES permit was determined by multiplying the water quality standard of 5 ug/L by a decay factor of 5 and a 15:1 dilution factor. Please see Comment #1, as well as the discussions in Comment #12 regarding “antibacksliding”.
- 29) Page 13, Outfall 003 – Expanded: Erie County requests the proposed WET testing action levels be updated based on the dilution factors from the July 2025 memorandum. Please see Comment #1. Footnote 8 on Page 10 would need to be updated as well. Finally, Erie County has concerns about conducting WET testing during the winter as Lake Erie often freezes and hence it would be difficult and/or dangerous to collect the lake samples needed.
- 30) Page 14-15, Outfall 003 – Expanded: Erie County has installed a new Outfall 001 sampling location as part of Phase 1 of the Southtowns Expansion Project. For redundancy and operational flexibility, Erie County requests the option to utilize this sampling location for Outfall 003 when Outfall 002 is not active. To implement in the draft permit, it is requested a footnote be added stating the following: “Permittee may use the Outfall 001 sampling location for Outfall 003 testing when Outfall 002 is not active.”
- 31) Page 14, Outfall 003 – Expanded: Erie County requests Footnote 5 be modified as follows (requested changes in **bold/underlined**): “Biennial Pollutant Scan: The permittee shall perform effluent sampling ~~every two (2) years~~ **during calendar years ending in 1, 3, 5, 7, and 9** for all applicable pollutants identified in the NY-2A Application, Tables A - D, **as available on the Department’s website at the time of the sampling**. Sampling data shall be collected according to the guidance in the NY-2A application and maintained by the permittee. Monitoring results shall not be submitted on the DMR. Data shall be submitted with the next

submission of the NY-2A form.” This would provide clarity regarding when the sampling must occur, and also account for periodic updates made by the NYSDEC for Tables A-D. Erie County would have no objection if the NYSDEC preferred even years to be sampled as opposed to odd years.

- 32) Page 15, Outfall 003 – Expanded: Erie County requests Footnote 9 be replaced in its entirety with the following: “Should the results of the Bacterial Assessment Study (BAS) included in the Schedule of Compliance and the Schedule of Submittals indicate compliance with fecal coliform limitations will also ensure compliance with E. coli water quality standards, then this sampling and testing is not required.” As presently written, this footnote would require the BAS study to be completed twice.
- 33) Page 15, Outfall 003 – Expanded
- a) Erie County requests the SPECIAL CONDITIONS FOR OPERATION OF OVERFLOW RETENTION FACILITY be placed on Page 7 with the Outfall 002 table, particularly because it could be misinterpreted that Item a) would require all Outfall 003 parameters be sampled for the ORF effluent, in addition to the sampling for Outfall 003. Should the NYSDEC decide to keep the SPECIAL CONDITIONS FOR OPERATION OF OVERFLOW RETENTION FACILITY in this section of the draft permit, it is requested Item a) be deleted in its entirety.
  - b) As part of the current (2012) SPDES permit, the Southtowns Facility implemented a wet weather operating plan and said plan remains in effect. The SCHEDULE OF ADDITIONAL SUBMITTALS in this draft permit states the existing wet weather operating plan shall be updated. Therefore, Erie County requests that Item e) in the SPECIAL CONDITIONS FOR OPERATION OF OVERFLOW RETENTION FACILITY, whether moved to be with the Outfall 002 table or kept in the same location in the draft permit, be modified as follows (requested changes in **bold/underlined**): “The permittee shall ~~develop and implement a~~ **update the Facility’s existing** Wet Weather Operation Plan (WWOP) **to reflect changes implemented for the expanded facility. ~~The WWOP shall outline the optimum operational procedures to transition from dry weather operation mode to wet weather operation mode, and back to dry weather operation mode. These procedures shall be used to optimize the treatment of the maximum volume of wet weather flows possible at the treatment plant during wet weather events, while minimizing discharges through the permitted overflow retention facility (ORF) and meeting the effluent limitations in this permit.~~ The **updated** WWOP shall be submitted to the NYSDEC Regional Water Engineer and to the Bureau of Water Permits in accordance with the Schedule of **Additional** Submittals.”**
  - c) Erie County requests an Item f) be added for the SPECIAL CONDITIONS FOR OPERATION OF OVERFLOW RETENTION FACILITY: “f) The ORF may be used as a wastewater storage and equalization facility (without ORF discharges) for process flexibility and preventative maintenance.” This is included in the SPECIAL CONDITIONS FOR OPERATION OF OVERFLOW RETENTION FACILITY in the current (2012) SPDES permit.
- 34) Page 16, Stormwater Pollution Prevention Requirements – Erie County questions the need for this information in the draft permit, as we are under the impression this is managed under SPDES Permit No. GP-0-23-001 (Southtowns Facility, ID: NYR00A951).
- 35) Page 19, Capacity, Management, Operation and Maintenance Plan: as part of the current (2012) SPDES permit, the Southtowns Facility implemented the “Collection System Program for Erie County Sewer Districts” to satisfy the Capacity, Management, Operation and Maintenance (CMOM) plan requirements. This plan remains in effect. Therefore, Erie County requests the CMOM section of this draft permit be modified as follows (requested changes in **bold/underlined**):
- a) “1. General Standards: The permittee shall ~~develop~~ maintain ~~and implement a~~ **its existing** Capacity, Management, Operation and Maintenance (CMOM) program. ...”
  - b) “2. **Compliance Due Date Submittals**: In accordance with the Schedule of Submittals, the permittee shall ~~submit an approvable CMOM Program, including an implementation schedule, to the Regional Water Engineer for review and approval. The permittee shall begin implementation of the approved CMOM program within 3 months of DEC approval. The permittee shall~~ review, update

and modify the CMOM plan annually and submit an annual report describing all actions taken in the preceding year. The submitted CMOM Program, ~~once approved,~~ **with subsequent updates,** shall supersede the requirements listed in this section for purposes of compliance with this Permit.”

36) Page 23, Schedule of Compliance – Phase II Design Documents:

- a) There is an “Error Bookmark not defined.” reference.
- b) Erie County is very concerned that the draft permit requires resubmittal of these design documents. If the dilution factors are adjusted to reflect those included in the July 2025 memorandum, additional analysis of ammonia and nitrite is not required, and this item may be deleted from the draft permit. Therefore, Erie County requests the “PHASE II DESIGN DOCUMENTS” and associated “INTERIM PROGRESS REPORT” be deleted.
- i) Resubmittal of these design documents significantly delays this critical capital project from advancing. It is in the best interests of all parties and the environment to advance the Phase 2 project as expeditiously as possible. Addressing this (and similar items) in the draft permit would allow the design documents already submitted to the NYSDEC for Phase 2 of the Southtowns Expansion Project to proceed to final regulatory review.

37) Page 23 Schedule of Compliance – Phase II Complete Construction:

- a) The 9/1/29 date listed in the draft permit assumed that bidding of Phase 2 of the Southtowns Expansion Project would occur in 2025 while Phase 1 was still under construction. As bidding will not occur in this timeframe due to delays with the modified SPDES permit and approval of the Phase 2 design documents, 9/1/29 is not achievable.
- b) The 9/1/29 date was originally set with an acknowledgment by the NYSDEC in letters/correspondences that ‘dynamic milestones’ can be incorporated into a modified SPDES permit to account for delays outside of Erie County’s control, such as NYSDEC approval of design documents.
- c) Using the latest information from Erie County’s consultant, Arcadis, the following durations are expected for Phase 2 of the Southtowns Expansion Project:
  - i) 6 months are needed for bid, award, and notice to proceed.
  - ii) 36 months are needed for construction of the new UNOX and clarifier systems.
  - iii) 12 months are needed to rehabilitate/expand the existing UNOX reactors, along with the testing and startup of equipment systems and reaching substantial completion of the main components of the project.
  - iv) 12-months are needed for commissioning (originally estimated in the Facilities Plan for 6-months). Commissioning will consist of equipment, systems, and process control troubleshooting/modifications, control system optimization, and importantly, linking the seasonally dependent hydraulic and process operation of the rehabilitated/expanded existing UNOX reactors with the new UNOX reactors and clarifiers. During commissioning the contractor may be directed to make additional changes to support the best operation of the Southtowns Facility and help ensure that Erie County can meet the expanded facility permit limitations.
  - v) Therefore, summing up the timeframes listed above, the total estimated Phase 2 construction period is 66 months. This is an estimate based on a detailed analysis of the critical path construction schedule and best engineering judgement. Please note: the 36-month timeframe for the construction of the new UNOX reactors and clarifiers, as well as the 12-month timeframe for the rehabilitation/expansion of the existing UNOX reactors, are highly dependent on issues such as contractor workforce availability, supply chain delays, weather, Southtowns Facility operational requirements, and the like. With respect to the Southtowns Facility operational requirements, there are over 25 tie-ins (connections to live/operating existing facilities, tanks, and pipes) that will require close coordination between the contractor and Southtowns Facility personnel in order to maintain SPDES permit compliance throughout construction of Phase 2. These tie-ins are highly dependent on contractor preplanning and most importantly, weather conditions, as they cannot be completed during wet weather events and high flows. The 36 month and the 12 month construction timeframes assume that the winning contractor is experienced and cooperative, that the weather conditions during construction align with the required tie-ins and other construction activities needed (such as the deep excavations for the

clarifiers), and there are not material/equipment supply chain delays. Based on our experience with other construction projects, we believe these construction timeframes are achievable, but will be challenging to meet. We request the NYSDEC's understanding of these issues, if during construction, we are required to seek extensions.

d) Note – if 24 months are needed for resubmittal of the PHASE II DESIGN DOCUMENTS and 6 months are estimated for NYSDEC reviews (total 30 months), construction will not be completed until 96 months (8.0 years) past the permit effective date (EDP).

i) Erie County believes this 30 month delay is not needed and updates should be made in this draft permit per Comment #1 (and others) to allow for the Phase 2 design, presently submitted to the NYSDEC, to be approved.

e) Without knowing the date on which the Phase 2 Design Documents will be approved by the NYSDEC, a firm date on which the Phase 2 improvements are fully functional cannot be set.

f) Erie County's ideal request would be that the Compliance Date be listed as "NYSDEC Approval of Phase II Design Documents + 66 Months". However, we are aware the NYSDEC cannot have deadlines in a SPDES permit that extend past 60 months. Considering the estimated construction schedule, the improvements for Phase 2 of the Southtowns Expansion Project would substantially complete within a 60 month period (i.e., prior to the start of the commissioning stage), provided NYSDEC approvals on the Phase 2 Design Documents are issued within 1-2 months of EDP. Therefore, it is proposed that this item continue to have a compliance date of EDP + 60 months, but be modified as follows (requested changes in **bold/underlined**):

i) PHASE II ~~**SUBSTANTIAL COMPLETION COMPLETE CONSTRUCTION**~~ The permittee shall provide a Certificate of **Substantial** Completion to the Department that the disposal system ~~**has been fully completed**~~ **is substantially complete and has commenced operation** in accordance with the approved Design Documents. **The Certificate shall include an enforceable date by which commissioning of the new Phase II systems will be complete.**

38) Page 23 Schedule of Compliance – Commence Operation: based on Comment #37 it is proposed that this item be modified as follows (requested changes in **bold/underlined**):

i) COMMENCE OPERATION Following ~~**receipt of**~~ Department acceptance of **the** Certificate of **Substantial** Completion **and completion of the commissioning of the new Phase II systems by the enforceable date**, the permittee shall comply with the final effluent limitation(s) described in this permit for ~~**Ammonia and Nitrite Outfall 001 - Expanded and Outfall 003 - Expanded**~~.

39) Page 24, Schedule of Compliance – Bacterial Assessment Study: Erie County requests the following text be eliminated: "The permittee may also submit, under separate cover, a permittee initiated modification request for modification of the monitoring requirements." Please see Comment #20.

40) Page 24, Schedule of Compliance – Interim Effluent Limits Table for Ammonia and Nitrite: the 9/1/2029 date listed in Footnote #1 is not attainable. Also, reference to Nitrite should be eliminated. Please see Comments #27 and #37. This information is duplicative to other parts of the draft SPDES permit and hence Erie County requests this table be eliminated.

41) Page 25, Monitoring Locations – Existing: now that Phase I of the Expansion Project is operational, Erie County will provide an updated figure with the chlorine contact tank, new Outfall 001 sampling location, and other improvements.

42) Page 30, Recording, Reporting and Additional Monitoring Requirements: Item C notes mailing addresses for submittals; however, the NYSDEC has often directed correspondences be transmitted electronically. Erie County requests that this section be updated, noting that electronic submissions are acceptable in lieu of submission to the listed addresses.

- 43) Page 31, Schedule of Additional Submittals – Wet Weather Operations Plan (WWOP): please see Comment #33. Erie County requests this item be modified as follows (requested changes in **bold/underlined**): “The permittee shall submit an updated Wet Weather Operation Plan (WWOP) **to reflect changes implemented for the expanded facility**. The WWOP shall outline the optimum operational procedures to transition...”
- a) Erie County also requests that the due date be changed from “EDP + 12 months” to “COMMENCE OPERATION of Phase II Improvements + 12 months”
- 44) Page 31, Schedule of Additional Submittals – Sewer System Evaluation Survey (SSES) Annual Report: Erie County requests this item be eliminated; the NYSDEC previously agreed this is duplicative of the CMOM annual report.
- 45) Page 31, Schedule of Additional Submittals – No Feasible Alternative Analysis: Erie County completed a “No Feasible Alternatives Analysis” as part of the current (2012) SPDES permit. The main recommendation was implementation of the Southtowns Expansion Project improvements. As the planned Phase 2 improvements have been incorporated into the draft SPDES permit, it is requested the No Feasible Alternative Analysis be eliminated from the Schedule of Additional Submittals.
- 46) Page 31, Schedule of Additional Submittals –Stormwater No Exposure Certification: it is requested this be eliminated; please see Comment #34.
- 47) Page 32, Schedule of Additional Submittals – Mercury Minimization Plan: Erie County requests that the due date be “EDP+15 months, annually thereafter”, as mercury data are to be collected monthly and time will be needed to incorporate the 12<sup>th</sup> month’s data into the annual report.
- 48) Page 32, Schedule of Additional Submittals –Emerging Contaminant Short-Term Monitoring Program: as stated in recently implemented TOGS 1.3.14, the referenced emerging contaminants are ubiquitous, and these compounds can be detected at extremely low concentrations virtually everywhere. Invariably, testing to be completed as part of this draft permit will have some level of detection. The draft SPDES permit requires source track down with the mere “presence of Emerging Contaminants”; however, that does not align with TOGS 1.3.14. From a practical perspective, source track down for ubiquitous compounds like these should only be required if concentrations are high enough to warrant those activities. Therefore, Erie County requests this item be modified as follows (requested changes in **bold/underlined**):
- i) **In accordance with TOGS 1.3.14, where the Department determines sampling results require additional investigation based on the information submitted, the Department may adjust the Environmental Benefit Permit Strategy (EBPS) scores associated with this SPDES permit. Additionally, the Department may propose a modification to this SPDES permit to include additional monitoring, action levels, and/or a pollutant minimization program (PMP) to track down potential sources and identify/implement actions to reduce effluent concentrations of Emerging Contaminants. If results indicate the presence of Emerging Contaminants, the permittee shall initiate track down of potential sources by completing the “Emerging Contaminants Investigation Checklist for POTWs” available at the above link. The DEC may periodically request updates or additional monitoring to check progress on track down investigations. Elements of the checklist may be used as permit conditions in future permit modifications.**

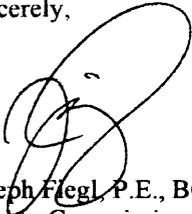
To assist in the NYSDEC's review of these comments, enclosed as Attachment B is a markup version of the draft SPDES permit. Additionally, Erie County can provide, at a later date, updates for various items in the draft SPDES permit fact sheet, including text regarding the Facility Information.

In this relatively short review period, Erie County attempted to provide a complete analysis of this draft modified permit. Should Erie County and the NYSDEC be unable to address the comments presented herein (or in subsequent correspondences) to the satisfaction of both parties, Erie County reserves its right to request a hearing.

It is important to note that time is of the essence for proceeding with construction of Phase 2 of the Southtowns Expansion Project. Besides the impacts of delaying the environmental benefits detailed in numerous reports, there are also substantial cost implications. Using data from the Engineering News Record Construction Cost Index, inflation in the industry was approximately 2.8% from January 2025 to January 2026. Considering an estimate of \$100 - \$150 million for Phase 2 of the Expansion Project, another year's delay equates to approximately \$2.8 - \$4.2 million of additional cost. A 30 month delay, if supplemental ammonia and nitrite analysis is required in this draft permit, could equate to approximately \$7.2 - \$10.7 million of additional construction cost due to inflation alone. Erie County respectfully requests matters related to this draft SPDES permit, as well as approvals for the Phase 2 design, continue to be prioritized by the NYSDEC so we may move ahead with this critical project as expeditiously as possible. It is in the best interest of the NYSDEC and Erie County, as well as the environment and local ratepayers.

Erie County would appreciate discussing this letter with the NYSDEC after it has had an opportunity to review and reflect upon these comments. In past SPDES permit modifications for other Erie County facilities, similar meetings were useful to garner a better understanding of each other's vantage point and to ultimately develop a consensus on particular issues. I can be reached at (716) 858-7537 or joseph.fiegl@erie.gov should the NYSDEC have any questions or wish to schedule a meeting. Thank you for your consideration.

Sincerely,



Joseph Fiegl, P.E., BCEE  
Deputy Commissioner

Encl.

Cc: ECSD No. 3 Board of Managers  
C. Smith – NYSDEC Albany  
D. King – NYSDEC Albany  
D. Skaros – NYSDEC Region 9  
C. Hardison – NYSDEC Region 9  
J. Amend/J. Husband/H. Smith – Arcadis  
A. Hintz – JMDavidson  
D. Delmont/J. Dolina/C. Horne/K. Kaminski/J. McDonald  
D. Millar/G. Pecak/M. Salah/3.2.3.SPDES Sanitary

**ATTACHMENT A**

Supplemental Information Related to Comment #1

## JUSTIFICATION FOR UTILIZING DILUTION FACTORS FROM THE JULY 2025 MEMORANDUM

### **Introduction**

The following discussion pertains to potential permit discharge limits for parameters defined by the water quality standard (WQS) and dilution factors (DFs). The New York State Department of Environmental Conservation (NYSDEC) utilizes the WQS and DFs to define many concentration-based limits in SPDES permits. In some instances, the allowable effluent load from a publicly owned treatment works is based on the facility's rated maximum monthly average flow (i.e. the design flow rate), the WQS, and the applicable DF.

The draft SPDES permit developed by the NYSDEC for the Southtowns Advanced Wastewater Treatment Facility (AWTF, being renamed as 'Water Resource Recovery Facility', or WRRF) includes concentration limits utilizing a DF of 16:1 for acute and chronic conditions based on a design flow rate of 46 million gallons per day (MGD) [SPDES Permit Fact Sheet, Erie County Southtowns WRRF, SPDES Permit NY0095401, page 13 of 63]. A 24:1 DF has been used by the NYSDEC in the draft permit for a flow rate of 26 MGD. These DFs differ from those submitted by Erie County in a memorandum titled "Addendum to Phase 2 Expansion Basis of Design Report Determination of Maximum Month Flow and Appropriate Dilution Factors" (JM Davidson Engineering, DPC, July 2025 – henceforth referred to as the "July 2025 memorandum").

Both the draft SPDES permit and July 2025 memorandum utilized CORMIX modeling to calculate the DFs. The main difference between the two are the simulated lake velocities: the NYSDEC's CORMIX modeling utilized a lake velocity of 0.017 meters per second (m/s), while the CORMIX modeling developed for the July 2025 memorandum utilized a lake velocity of 0.031 m/s. The following sections detail why there is better justification for using the July 2025 memorandum DFs of 29:1 for 26 MGD and 19:1 for 46 MGD when developing final SPDES permit limitations for the Southtowns WRRF.

For the purposes of this discussion, ammonia will be of focus as there is the most robust set of existing effluent data, and Erie County's recommended alternative to meet final effluent limitations for ammonia consisted of updating DFs to account for improvements incorporated into the Southtowns AWTF Expansion Project.

### **History**

As part of the development of the Southtowns AWTF Updated Facilities Plan and the subsequent design of improvements to update the facility to treat more flow, Erie County and their consultants have performed multiple evaluations regarding DFs. A summary of these evaluations is presented in Table 1 below:

Table 1 – Summary of Evaluations Related to DFs and Ammonia

ID No.	Date	Report	Prepared by	Major Conclusions
1	12/22/14	Ammonia Study Memorandum	Arcadis	Ammonia concentration exceeds limit 1.4% of the time.
				At AWTF flows >20 MGD, influent NH <sub>3</sub> concentrations <15 mg/L, with effluent concentrations 1-2 mg/L less. (2005 - 2013 data)
				NH <sub>3</sub> loadings expected to exceed 0.7% of time, with limit not exceeded by more than 50 lbs/d (out of 3,002 lbs/d) (2005 - 2013 data)
				Examined adding additional diffusers to increase DF (NYSDEC and URS 2004 CORMIX results)
				Examined adding treatment within AWTF but not cost-effective for exceedance with low probabilities
				Noted that minimum lake level used in this memo was extreme, as last experienced in 1936.
2	10/30/15	Southtowns AWTF Facilities Plan	Arcadis/GHD	<p>Incorporates 12/22/2014 Ammonia Study Memorandum</p> <p>Used 31 MGD as max month flow by extrapolating past flows</p>
3	5/16/19	Southtowns AWTF Hydraulics Analysis Memorandum	GHD	Updated lake level evaluation
				Examined several options for outfall configurations
4	5/12/19	Southtowns AWTF Facility Plan Update - Additional Ammonia Evaluations	Arcadis	Recommended Alt. 3D, which increased diffuser size to 8 x 8 x 8 and added effluent pumping station.
5	9/15/19	Southtowns AWTF Updated Facilities Plan - Summary Letter Report	Arcadis/GHD	<p>Per 4/1/2019 DEC email indicating the values were acceptable, depth was changed to 5m and average lake velocity changed to 0.031 m/s, AWTF flow of 31 MGD, 8-inch dia diffuser, DF = 26.9</p> <p>Erie County requested DF = 26.9 at 31 MGD, based on 5/12/2019 Additional Ammonia Evaluations memo</p>
7	2/15/22	Southtowns AWTF Mixing Zone Demonstration Report	Arcadis	Facilities Plan and Letter report approved by NYSDEC in 2/18/2020 correspondence, allowing Phase 1 and 2 Expansion Projects to commence design.
8	5/23/23	Southtowns AWTF Permitted Capacity Evaluation	JMD	DF change requested DF = 26.9 at 31 MGD in mixing zone demonstration report to EPA for ammonia
9	7/8/25	Addendum to Phase 2 Expansion Basis of Design Report Determination of Maximum Month Flow and Appropriate Dilution Factors	JMD	Increase in UNOX capacity results in AWTF's new maximum monthly average flow capacity between 39 and 46.3 MGD
				Design of the Phase 2 expansions indicated that a monthly average flow greater than 31 MGD is warranted, based on the results of the 5/23/2023 Permitted Capacity Evaluation memorandum. Results considered a maximum monthly average flow of 46.3 MGD.

The July 2025 memorandum presented a table showing a comparison of historical effluent data with effluent concentrations of ammonia for various DFs, depending on what AWTF flow is used as the new permitted flow. Table 2 below is the same as Table 5 in the July 2025 memorandum except that the sixth column was adjusted to calculate values for 46 MGD, rather than the previously used 46.3 MGD. Note that all values in the table are calculated as NH<sub>3</sub>, rather than NH<sub>3</sub> as N.

*Table 2 – Updated July 2025 Memorandum Table (for 46 MGD)*

Description	Standard for Receiving Waterbody (mg/L) <sup>1</sup>	31 MGD	39 MGD	43 MGD	46 MGD	Max. Value from 2021-2024 Effluent Data (mg/L)
Dilution Factor	--	26.9	22.25	20.1	18.9	--
NYS Standard (TOGS 1.1.1, 1998) – Type H(WS)	2.43 <sup>3</sup>	65.37	54.07	48.84	45.93	27.1
NYS Standard (TOGS 1.1.1, 1998) – Type (A/A) – Currently used as ambient waterbody concentration	1.5 <sup>4</sup>	40.35	33.38	30.15	28.35	27.1
Chronic – 30d avg. (EPA, 2013)	1.2 <sup>5</sup>	32.28	26.70	24.12	22.68	22.1
Chronic – 4d avg. (EPA, 2013)	3.0 <sup>7</sup>	80.70	66.75	60.30	56.70	25.5 <sup>8</sup>
Acute (EPA, 2013)	7.4 <sup>9</sup>	199.06	164.65	122.61	138.86	27.1 <sup>10</sup>

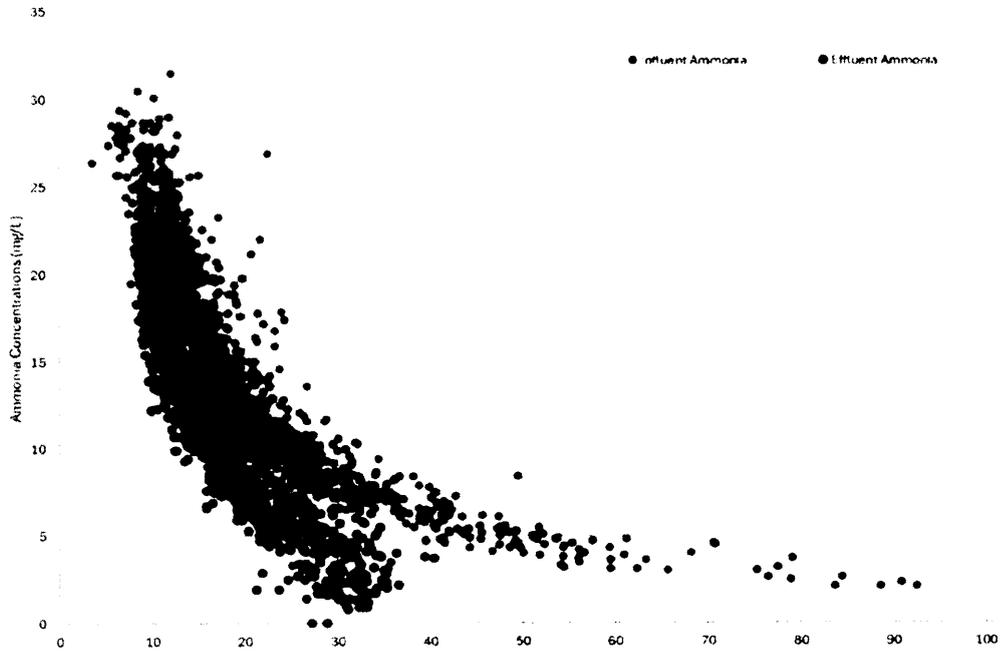
Notes:

1. Expressed as mg/L as NH<sub>3</sub>.
2. Dilution Factors (DF) assumed for outfall are as shown on Table 4.
3. From Table 1 of TOGS 1.1.1, assuming Type H(WS), converted from mg/L as N to mg/L as NH<sub>3</sub>. It should be noted that in the regulation (6 CRR NY 837.4, Table 1), no qualifier types are given for line item no. 134 for Lake Erie, which applies to this AWTF.
4. From Table 1 of TOGS 1.1.1, assuming Type A(A). It should be noted that in the regulation (6 CRR NY 837.4, Table 1), no qualifier types are given for line item no. 134 for Lake Erie, which applies to this AWTF.
5. From Table 6 on Page 49 of EPA Freshwater 2013, for pH =7.5 and temperature = 25°C., converted from 1.0 mg/L as N to 1.2 mg/L as NH<sub>3</sub>.
6. Represents maximum 30-day rolling average as required by chronic criteria
7. Represents chronic ammonia concentration in waterbody of 1.0 mg/L total ammonia nitrogen x 2.5, as indicated on page 46 of EPA Freshwater 2013, converted to mg/L as NH<sub>3</sub>.
8. Represents maximum 4-day rolling average as indicated on page 46 of EPA Freshwater 15, converted to mg/L as NH<sub>3</sub>.
9. From Table 5a on Page 44 of EPA Freshwater 2013, for pH =7.5 and temperature = 25°C.
10. Represents a 24-hour average as opposed to the acute criteria stated 1-hour average as samples at the AWTF are collected as 24-hour composite samples.
11. Table assumes conservative assumption of no degradation of ammonia, even though microorganisms in the lake convert ammonia to nitrate and nitrite, so actual levels of ammonia in the waterbody are expected to be lower than the concentrations listed. Note that AWTF lab uses Standard Method 4500-NH<sub>3</sub>, Methods D or E, to measure total ammonia nitrogen (TAN), which is then expressed in standard units of mg/L NH<sub>3</sub> for comparison with guidance values.

### Analysis

*Key Takeaway #1 – Ammonia concentrations decrease as flows increase, and hence CORMIX modeling is conservative using maximum monthly design flows*

Figure 1 and Figure 2 below present data for influent and effluent ammonia concentrations. These data demonstrate that effluent concentrations decrease as flows increase, in part due to the influences of infiltration/inflow. This is because infiltration/inflow has lower pollutant loadings than sewage.



*Figure 1: 2021-2024 Data for Influent and Effluent Ammonia Concentrations (as NH3)*

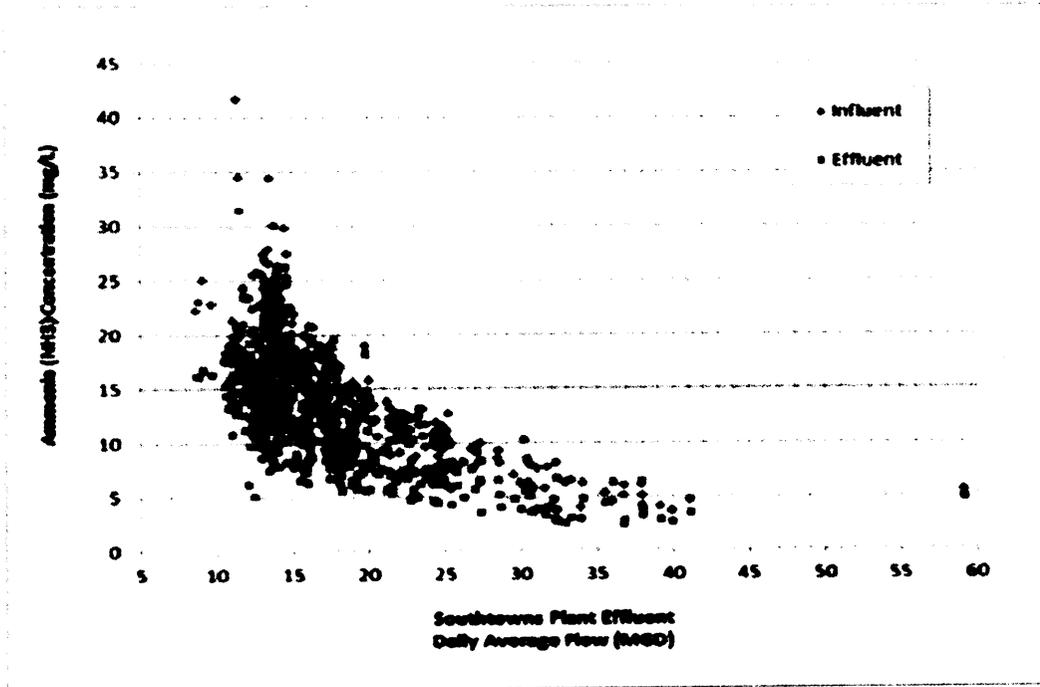


Figure 2: 2003-2013 Data for Influent and Effluent Ammonia Concentrations (as NH<sub>3</sub>)

Both the CORMIX modeling analysis completed by the NYSDEC, as well as the CORMIX modeling completed for the July 2025 memorandum, consider the maximum monthly flow rates to determine the DFs. Table 2 demonstrates that as flows decrease, the associated DF increases. When compared to the corresponding effect regarding effluent concentrations and flows, these CORMIX modeling evaluations are conservative in nature. In other terms, when the concentrations are the highest, so too are the DFs; but the SPDES permit limitation is static using a lower DF.

*Key Takeaway #2 – Assumptions in the CORMIX model related to conservative pollutants and density equivalents provide additional factors of safety*

Both the CORMIX modeling analysis completed by the NYSDEC, as well as modeling completed for the July 2025 memorandum, included additional factors of safety in their analyses:

- Considered ammonia a conservative substance: TOGS 1.3.1.E indicates that ammonia is treated by the NYSDEC as a non-conservative substance; however, a decay factor for this specific waterbody was not applied in the simulations. The CORMIX model assumed that ammonia is conservative and would not degrade upon discharge. Assuming ammonia to be conservative results in a lower modeled DF than what would occur in the field.
- Used a lower effluent temperature: the NYSDEC and July 2025 memorandum simulations (and prior CORMIX modeling) used densities that are equivalent to an average lake temperature of 51°F and a Southtowns AWTF effluent temperature of 57°F. However, the average Southtowns AWTF effluent temperature (from daily data 2021-2025) was determined to be 61°F. At lower velocities within the lake, density-driven mixing of the plume dominates.
  - A higher effluent temperature increases the buoyant mixing of the plume. If the actual average effluent temperature were to be used in the CORMIX model, along with the NYSDEC's ambient minimum velocity of 0.017 m/s, the decrease in density of the effluent associated with this

temperature would increase the DF to 19.5 at the end of the near-field region, for 46 MGD. Using the actual effluent average temperature of 61°F with the recommended ambient velocity of 0.031 m/s increases the DF to 20.9 at the same flow. The DF recommended in the July 2025 memorandum for 46 MGD (19) is below both of these DFs.

*Key Takeaway #3 – Lake velocity measurements are based off models, do not account for other turbulent processes, and are essentially equivalent*

The July 2025 memorandum CORMIX modeling used an average velocity in the lake of 0.031 m/s, which converts to 1.2 inches/second or 0.07 miles per hour (mph). The velocity is derived from large-scale circulation modeling performed by the Great Lakes Environmental Research Center. The circulation model is limited due to the proximity to shore, and does not fully resolve localized wind wave generation, wind gusts, and other turbulent processes that increase mixing.

The NYSDEC utilized a minimum velocity of 0.017 m/s from the large-scale circulation modeling, which converts to 0.7 inches/second or 0.04 miles per hour. Whether considering the average or the minimum velocities, in reality they are essentially equivalent, and in the field the difference in these velocities would defy accurate measurement. Erie County's consultants, with extensive modeling experience, maintain that a velocity of 0.031 m/s is a better metric to assess contributions of localized lake processes on the plume dispersion.

For a scale of how low these velocities are relative to aquatic life, a walleye has an average swim speed of 1 to 2.5 mph.

*Key Takeaway #4 – The maximum month design flow should not be used with the minimum current velocity*

For these simulations utilizing the maximum month design flow, it is more appropriate to use the average lake current velocity, rather than the minimum current velocity.

## **Conclusion**

Much evaluation has been completed to determine the most appropriate monthly average flow and corresponding dilution factor as evidenced in the preceding sections. The existing model is incredibly conservative as evidenced by the comparison of flows and concentration, the factors of safety built into several parameters used in simulations, the extremely low lake velocities being considered as model inputs, and considering analyses are based upon a maximum month design flow. For all these reasons, we believe use of the 0.031 m/s velocity in the lake simulations is appropriate, is protective of water quality, while not disproportionately impacting the Southtowns AWTF operations. Therefore, it is Erie County's recommendation that the modified SPDES permit, when made final, use the July 2025 memorandum DFs based on the 0.031 m/s velocity.

## **ATTACHMENT B**

Markup Version of the Draft SPDES Permit

[ENCLOSURE NOT INCLUDED]  
FOR BOARD