

**CITY OF KEENE NPDES PERMIT NO. NH0100790
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A. FINAL PERMIT DOCUMENTS

1. Final Permit and Attachments, NPDES Permit No. NH0100790. September 13, 2021.
2. Response to Comments and Attachments, NPDES Permit No. NH0100790. September 13, 2021.
3. Final Permit Transmittal Email, NPDES Permit No. NH0100790. September 14, 2021.
4. Permit issuance letters:
 - a. Letter from Ken Moraff, EPA Region 1, to Kurt Blomquist, City of Keene, re Final Permit Issuance. September 13, 2021.
 - b. Letter from Ken Moraff, EPA Region 1, to Justin Frazier, Town of Marlborough, re Final Permit Issuance. September 13, 2021.
 - c. Letter from Ken Moraff, EPA Region 1, to Michele Talbot, Town of Swanzey, re Final Permit Issuance. September 13, 2021.
 - d. Letter from Ken Moraff, EPA Region 1, to Kelly Streich, CTDEEP, re Final Permit Issuance. September 13, 2021.
 - e. Letter from Ken Moraff, EPA Region 1, to Barbara Skuly, Ashuelot River Local Advisory Committee (ARLAC), re Final Permit Issuance. September 13, 2021.

B. OTHER PERMIT DOCUMENTS

1. Notice of Approval of Industrial Pretreatment Program (IPP) Local Limits. Letter from M. Spinale of EPA to Eric Swope of Keene. January 20, 2021
2. Notice of Request for Approval of Modifications to the IPP Local Limits. December 18, 2020.
3. Draft Permit, NPDES Permit No. NH0100790. May 20, 2020.
4. Fact Sheet, Draft NPDES Permit No. NH0100790. May 20, 2020.
5. Letters re: Draft Permit issuance
 - a. Letter from Michael Cobb, EPA Region 1, to Kurt Blomquist, City of Keene, re Draft Permit Issuance. May 18, 2020.
 - b. Letter from Michael Cobb, EPA Region 1, to Justin Frazier, Town of Marlborough, re Draft Permit Issuance. May 18, 2020.
 - c. Letter from Michael Cobb, EPA Region 1, to Michele Talbot, Town of Swanzey, re Draft Permit Issuance. May 18, 2020.
6. Public Notice, NPDES Permit No. NH0100790. May 20, 2020.
7. Public Notice Extension, NPDES Permit No. NH0100790. June 18, 2020.
8. Public Notice Extension Request, NPDES Permit No. NH0100790, received May 20, 2020.

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9. Site Visit Report. October 25, 2018.
10. Letter from H. Curtis Spalding, EPA Region 1, to Wallace Smith, Town of Marlborough, re Co-Permittee Waiver from NPDES Application Requirement. August 5, 2015.
11. Letter from H. Curtis Spalding, EPA Region 1, to Gina Paight, Town of Swanzey, re Co-Permittee Waiver from NPDES Application Requirement. August 5, 2015.
12. Application Complete Letter, S. Puleo, EPA Region 1, to A. Costa, City of Keene. July 24, 2012.
13. Email Reply to Application Deficiency Letter, A. Costa, City of Keene, to S. Puleo, EPA Region 1. July 24, 2012.
14. Application Deficiency Letter, S. Puleo, EPA Region 1, to A. Costa, City of Keene. July 11, 2012.
15. Permit Reapplication and Cover Letter, John Maclean, City of Keene, EPA Region 1, to S. Puleo, EPA Region 1. June 21, 2012.
16. Previous Permits and Related Materials
 - a. Final Permit & Attachments, NPDES Permit No. NH0100790, and RTC, reproducing public comments verbatim. August 24, 2007.
 - b. *In re Keene Wastewater Treatment Facility*, NPDES Appeal No. 07-18 (EAB March 19, 2008) (Order Denying Review).
 - c. *In re Keene Wastewater Treatment Facility*, NPDES Appeal No. 07-18 (EAB December 5, 2007) (Order Noticing Partial Withdrawal of Permit and Dismissing Portion of Petition for Review as Moot).
 - d. Notice of Withdrawal of Certain Contested Permit Conditions, Appeal No. NPDES 07-18, Nov. 20, 2007.
 - e. Notice of Uncontested and Severable Permit Conditions, Appeal No. NPDES 07-18. Oct. 18, 2007.
 - f. City of Keene Petition for Review of Contested Conditions, Appeal No. NPDES 07-18. September 28, 2007.
 - g. Final Permit & Attachments, NPDES Permit No. NH0100790. April 15, 1994.

C. PUBLIC COMMENTS

1. Ashuelot River Local Advisory Committee Comment Letter. July 17, 2020.
2. Connecticut Department of Environmental Protection. Comment letter. July 10, 2020.
3. Keene, NH Comment Letter and Attachments. July 17, 2020.
 - a. Attachment – WWTF Upgrades
 - b. Attachment – Receiving water pH data
 - c. Attachment – Parallel WET Tests Unadjusted pH
 - d. Attachment – New Hampshire VRAP 2007 Ashuelot River Watershed Water Quality Report (“2007 VRAP Report”)
 - e. Attachment – New Hampshire VRAP 2008 Ashuelot River Watershed Water Quality Report (“2008 VRAP Report”)

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- f. Attachment – 2009 VRAP New Hampshire VRAP 2007 Ashuelot River Watershed Water Quality Report (“2007 VRAP Report”)
- g. Attachment – New Hampshire VRAP 2010 Ashuelot River Watershed Water Quality Report (“2010 VRAP Report”)
- h. Attachment – Total Recoverable Aluminum Sampling Parameters
- i. Attachment – 1994 Metals Limit, Total Recoverable Copper
- j. Attachment – Industrial Users List

D. WATER QUALITY CERTIFICATION

- 1. CWA § 401 Certification, Thomas O’Donovan, NHDES, to Ellen Weitzler, EPA Region 1. August 18, 2020.
- 2. Letter from Thelma Murphy, EPA Region 1, to Thomas O’Donovan, NHDES, EPA Region 1, re: Extension Request. July 13, 2020.
- 3. Letter from Thomas O’Donovan, NHDES, to Ellen Weitzler, EPA Region 1, re CWA § 401 Certification Extension Request. June 22, 2020.
- 4. Letter from Ellen Weitzler, EPA Region 1, to Thomas O’Donovan, NHDES re Request for CWA § 401 Certification of Draft Permit. May 15, 2020 (transmitted May 20, 2020).

E. ENDANGERED SPECIES ACT

- 1. Letter from John Nagle, EPA Region 1, to David Simmons, United States Fish and Wildlife Service Requesting ESA Concurrence. August 17, 2020.
- 2. Letter from Audrey Mayer, United States Fish and Wildlife Service, to John Nagle, EPA Region 1, re: Request for Concurrence. July 13, 2021

F. CORRESPONDENCE

- 1. Email from K. Streich, CTEEP to G. Papadopoulos of EPA, acknowledging receipt of Final Permit. September 14, 2021.
- 2. Email from J. Pimpare of EPA to Eric Swope of Keene with copy to G. Papadopoulos of EPA with attached letter regarding approval of local limits. January 20, 2021.
- 3. Email from NHDES to EPA - Regarding the State of NH’s use of August median stream flows in lieu of 7Q10 calculations to establish nutrient discharge limits for aquatic life and human health criteria, August 11, 2020
- 4. Email from NHDES to EPA - Regarding the State of NH’s allowance of pH demonstration to support limit adjustment for pH, August 11, 2020.

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5. Email from H. Franz of NHDES to G. Papadopoulos of EPA relaying the Minimum Level (ML) for parameter Dissolved Organic Carbon (DOC). December 31, 2020.
6. Email from H. Franz of NHDES to G. Papadopoulos of EPA regarding pH limit modification. August 9, 2021.
7. Email from G. Papadopoulos of EPA to H. Franz of NHDES regarding pH limit modification. August 5, 2021.
8. Email from H. Franz of NHDES to G. Papadopoulos of EPA regarding Operation and Maintenance (O&M) language in Draft Permit. December 30, 2020.
9. Email from Jay Pimpore noting that Industrial Pretreatment Program (IPP) local limit report is being public noticed on 12/18/20; December 17, 2020.
10. Email from Janet Deshaies of EPA to Mary Ley of the City of Keene regarding the use of alternative dilution water (ADW) for whole effluent toxicity (WET)testing. July 30, 2020.
11. Email from H. Franz of NHDES to G. Papadopoulos of EPA relaying revised 7Q10 flow derivation, March 5, 2020.
12. Email from A. Costa, City of Keene to G. Papadopoulos of EPA relaying revised WWTF flow schematic, December 26, 2019.
13. Email from H. Franz of NHDES to G. Papadopoulos of EPA relaying 7Q10 flow derivation, December 20, 2019.
14. Email from H. Franz of NHDES to G. Papadopoulos of EPA regarding State of NH adoption of aluminum criteria. December 18, 2019.
15. Emails from M. Ley, City of Keene, to G. Papadopoulos of EPA transmitting WET test results. November 22, 2019.
16. Email from H. Franz of NHDES to A. Costa of NHDES, copy to G. Papadopoulos of EPA re: WET test data for pH. December 18, 2018.
17. Emails (3) from D. Hanscom, City of Keene, to G. Papadopoulos of EPA transmitting WET test results. November 27, 2018.
18. Email from Ken Edwardson of NHDES to G. Papadopoulos of EPA re: Water Quality Assessment reports – chlorophyl *a*. impairment. August 13, 2018.

G. STATE 303(D) AND CALM MATERIALS

1. New Hampshire 2018 303(d) List of Impaired Waters.
2. Consolidated Assessment and Listing Methodology. NHDES-R-WD-20-20 October 16, 2020.

H. EPA WATER QUALITY STANDARDS AND 303(d) LISTING APPROVALS

1. EPA Partial Review and Action on New Hampshire Surface Water Quality Standards, Env-Wq 1700. January 29, 2021.
2. Review and Action on New Hampshire Surface Water Quality Standards, Env.-Wq 1700. September 17, 2013.
3. EPA Approval of New Hampshire 2018 303(d) List of Impaired Waters. February 25, 2020.

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I. LONG ISLAND SOUND TMDL AND SCIENTIFIC MATERIALS

1. TMDL Approval Letter from the Long Island Sound Office of the U.S. EPA to the States of New York and Connecticut, with enclosure entitled: EPA New England and EPA Region 2 TMDL Review for TMDL in Long Island Sound, Connecticut and New York, Final Status, Impairment/Pollutant is Hypoxia (Low Dissolved Oxygen) Due to Nitrogen. April 3, 2001.
2. A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound. Connecticut Department of Environmental Protection and New York State Department of Environmental Conservation. December 2000.
3. Long Island Sound Nitrogen Reduction Strategy. EPA Region 1 and Region 2. December 2015.
4. Enhanced Implementation Plan for the Long Island Sound Total Maximum Daily Load. Long Island Sound Study Steering Committee, NY, CT, MA, NH, VT. 2012.
3. Watershed Synthesis Section: A Preliminary and Qualitative Evaluation of the Adequacy of Current Stormwater and Nonpoint Source Nitrogen Control Efforts in Achieving the 2000 Long Island Sound Total Maximum Daily Load for Dissolved Oxygen. New England Interstate Water Pollution Control Commission. August 2014.
4. Enhanced Implementation Plan: Preliminary Evaluation of Current Stormwater and Nonpoint Stormwater and Nonpoint Source Control Efforts in Massachusetts. MassDEP. September 4, 2013.
5. Evaluation of Stormwater and Nonpoint Source Control Efforts in the Long Island Sound Watershed. CTDEEP. September 3, 2013.
6. Qualitative Assessment of Stormwater and Nonpoint Source Control Efforts in the Long Island Sound (LIS) Watershed. NHDES. September 5, 2013.
7. Long Island Sound TMDL Fact Sheet. EPA. 2017.
8. 2019 Long Island Sound Hypoxia Season Review. CTDEEP, Interstate Environmental Commission, EPA. 2019.
9. 2018 Long Island Sound Hypoxia Season Review. CTDEEP, Interstate Environmental Commission, EPA. 2018.
10. Long Island Sound Study, Waters and Watersheds Ecosystem Targets and Indicators for Hypoxia, Extent of Hypoxia, Severely Hypoxic and Anoxic Areas, Nitrogen Loading and Population. EPA. 2020.
11. A Healthier Long Island Sound: Nitrogen Pollution. LISS. 2019.
12. Long Island Sound Report Card. Save the Sound. 2018.
13. Long Island Sound Comprehensive Conservation and Management Plan 2015 Returning the Urban Sea to Abundance (CCMP). LISS. 2015.
14. Long Island Sound Resource and Use Inventory, Version 1.4. Long Island Sound Inventory and Science Subcommittee of the Blue Plan Advisory Committee. September 2019.
15. General Permit for Nitrogen Discharges. CTDEEP. 2011.

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16. Connecticut's Second Generation Nitrogen Strategy Long Island Sound 2017-2022. CTDEEP. 2019.
17. Upgrades to Four Wastewater Treatment Plants Reduce Nitrogen Discharges by 60 Percent, Increase Dissolved Oxygen Levels and Improve the Ecology of Waterways. NYDEC. January 5, 2017.
18. Connecticut River Watershed 203 Water Quality Assessment Report. MassDEP. 2003.
19. Chicopee River Watershed 203 Water Quality Assessment Report. MassDEP. 2008.
20. EPA Presentation Slides for April 24, 2018 Informational Meeting.
21. Email. Johnathan Morison, USGS, to Denise Ruzicka, CTDEEP, re Time of Travel. June 20, 2018.
22. Nitrogen Requirements for NPDES Permits in the Long Island Sound Watershed, EPA and MassDEP, PowerPoint presentation for public meeting held June 7, 2019 in Springfield, MA.
23. Email. Susannah King, MassDEP, to LIS Stakeholders. Reminder and Agenda for June 7, 2019 Public Meeting: Nitrogen Requirements for NPDES Permits in Long Island Sound Watershed. May 31, 2009.
24. Long Island Sound 2001 TMDL Implementation - Summary of Massachusetts Total Nitrogen Annual Average Loading Limits, EPA, distributed at EPA/MassDEP public meeting held June 7, 2019 in Springfield, MA.
25. Petition to Review and Amend or Reissue the Long Island Sound Nitrogen TMDL to Mandate Further Enforceable Nitrogen Reductions. Connecticut Fund for the Environment. 2015.
26. Request to Modify, Revoke and Reissue or Terminate NPDES Permits Nos. MA0101613 and MA 0103331 Issued to the Springfield Water and Sewer Commission. Connecticut Fund for the Environment and Save the Sound. 2015.
27. Integrated Water Quality Report. CTDEEP. 2018.
28. Mullaney, J.R., and Schwarz, G.E., 2013, Estimated Nitrogen Loads from Selected Tributaries in Connecticut Draining to Long Island Sound, 1999–2009: U.S. Geological Survey Scientific Investigations Report 2013–5171, 65.
29. Moore, Richard B., Craig M. Johnston, Richard A. Smith, and Bryan Milstead, 2011. Source and Delivery of Nutrients to Receiving Waters in the Northeastern and Mid-Atlantic Regions of the United States. Journal of the American Water Resources Association (JAWRA) 47(5):965-990. DOI: 10.1111/j.1752-1688.2011.00582.x
30. Maupin, Molly A. and Tamara Ivahnenko, 2011. Nutrient Loadings to Streams of the Continental United States From Municipal and Industrial Effluent. Journal of the American Water Resources Association (JAWRA) 47(5):950-964.
31. Bricker, S., B. Longstaff, W. Dennison, A. Jones, K. Boicourt, C. Wicks, and J. Woerner. 2007. Effects of Nutrient Enrichment In the Nation's Estuaries: A Decade of Change. NOAA Coastal Ocean Program Decision Analysis Series No. 26. National Centers for Coastal Ocean Science, Silver Spring, MD. 328 pp.
32. Nutrients in Estuaries. A Summary Report of the National Estuarine Experts Workgroup 2005-2007. EPA November 2010.
33. Smith, T.E., Laursen, A.E., Deacon, J.R. 2008. Nitrogen Attenuation in the Connecticut River, Northeastern USA; A Comparison of Mass Balance and N2 Production Modeling Approaches. Biogeochemistry (2008) 87:311-323.
34. National Estuary Program Coastal Condition Report. EPA 842/B-06/001. EPA. 2006.
35. National Coastal Condition Report II. EPA 620/R-03/002. EPA. December 2004.

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36. National Coastal Condition Report. EPA 620/R-01/005. EPA. September 2001.
37. Manual – Nitrogen Control. EPA/625/R-93/010. EPA. September 1993.
38. Mullaney, J.R., 2016, Nutrient, organic carbon, and chloride concentrations and loads in selected Long Island Sound tributaries—Four decades of change following the passage of the Federal Clean Water Act: U.S. Geological Survey Scientific Investigations Report 2015–5189, 47 p.
39. Detenbeck, Naomi E., Mingde You and Daniel Torre, 2019, Recent Changes in Nitrogen Sources and Load Components to Estuaries of the Contiguous United States, *Estuaries and Coasts*, 42:2096-2113.
40. Smith, Thor E., et al, Nitrogen Attenuation in the Connecticut River, Northeastern USA; A Comparison of Mass Balance and N₂ Production Modeling Approaches, *Biogeochemistry*, Mar., 2008, Vol. 87, No. 3, pp. 311-323
41. Materials relating to Springfield, MA NPDES Permit No. MA0101613 Proceeding
 - a. Letter from CTDEEP to EPA Region 1 and MADEP, Re: Draft Springfield Regional Wastewater Treatment Plant and CSO discharge permit number (MA0101613), Feb. 7, 2018.
 - b. Letter from Connecticut River Conservancy to EPA Region 1, RE: Springfield Regional Wastewater Treatment Facility draft NPDES Permit Number: MA0101613, Feb. 12, 2018.
 - c. Letter from CTDEEP to EPA Region 1 and MADEP, Re: Draft Springfield Regional Wastewater Treatment Plant and CSO discharge permit number (MA0101613), April 27, 2018.
 - d. Letter from CT Fund for the Environment Save the Sound, Re: Draft NPDES PERMIT for the Springfield Water and Sewer Commission Permit Number; MA0101613, Feb. 7, 2018.
 - e. Response to Comments, NPDES No. MA0101613. September 30, 2020.
 - f. EPA Region 1 Response to the Petition for Review, *In re Springfield Water and Sewer Commission*, NPDES Permit Appeal No. 20-07 (Dec. 11, 2020).
 - g. *In re Springfield Water and Sewer Commission*, 18 E.A.D. 430 (EAB 2021).

J. EPA GUIDANCE, INCLUDING EPA NATIONALLY RECOMMENDED WATER QUALITY CRITERIA

1. Final Aquatic Life Ambient Water Quality Criteria for Aluminum, EPA-822-R-18-001. 2018.
2. Ambient Water Quality Criteria for Aluminum, EPA-440/5-86-008. 1988.
3. Interim Guidance on Determination and Use of Water-Effect Ratios for Metals, EPA-823-B-94- 001. 1994.
4. Streamlined Water-Effect Ratio procedure for Discharges of Copper, EPA-822-R-01-005. 2001.
5. Biotic Ligand Model (freshwater only), EPA-822-R-07-001. 2007.
6. Local Limit Development Guidance. EPA. 2004.
7. U.S. Environmental Protection Agency NPDES Permit Writer’s Manual, EPA-833-K-10-001. 2010.
8. Municipal Nutrient Removal Technologies Reference Document, EPA-832-R-08- 006. 2008.

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9. Biological Nutrient Removal Processes and Costs, EPA-823-R-07-002. 2007.
10. National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047. 2002.
11. Nutrient Criteria Technical Guidance Manual: Estuarine and Coastal Marine Waters, EPA-822-B-01-003. 2001.
12. Nutrient Criteria Technical Guidance Manual: Rivers and Streams, EPA-822-B-00-002. 2000.
13. Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs, EPA-822-B00-001. 2000.
14. U.S. EPA NPDES Permit Writer's Manual, EPA-833-B-96-003. 1996.
15. U.S. EPA NPDES Permit Writer's Manual, EPA-833-K-10-011. 2010.
16. Interim Economic Guidance for Water Quality Standards, EPA-823-B-95-002. 1995.
17. Clarifications Regarding Certain Aspects of EPA's Surface Water Toxics Control Regulations. EPA.1992.
18. Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001. 1991.
19. Quality Criteria for Water 1986, EPA 440/5-86-001. 1986.
20. Letter from James Pendergast, EPA to Gary Stenhouse, City of Rochester, NH regarding Seasonal Flows to Calculation NPDES Permit Limits. 1996.
21. Water Quality Standards Handbook, EPA-823-B-17-001. 2017.
22. Transmittal of Final Policy on Biological Assessments and Criteria; Davies, Tudor, EPA, June 19, 1991.
23. Whole Effluent Toxicity (WET) Control Policy, EPA833-B-94-002. 1994
24. Working Together, FY 2018-2022 U.S. EPA Strategic Plan, Sept. 2019.

K. DMR AND OTHER DATA

1. DMR data: October 2014 - October 2019.
2. Whole Effluent Toxicity Testing reports: 2014 - 2019.

L. FEDERAL STATUTORY AND REGULATORY AUTHORITIES

1. The Clean Water Act, 33 U.S.C. § 1251 *et seq.*
2. 40 C.F.R. Part 122
3. 40 C.F.R. Part 124
4. 40 C.F.R. Part 125
5. 40 C.F.R. Part 130
6. 40 C.F.R. Part 131
7. 40 C.F.R. Part 133
8. 40 C.F.R. Part 403

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M. FEDERAL REGISTER NOTICES

1. Consolidated Permit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980)
2. Water Quality Standards Regulation, 47 Fed. Reg. 49,234 (Oct. 29, 1982)
3. Water Quality Standards Regulation, 48 Fed. Reg. 51,400 (Nov. 8, 1983)
4. NPDES Surface Water Toxics Control Program, 54 Fed. Reg. 23,868 (June 2, 1989)
5. Changes to Regulations to Reflect the Role of the New Environmental Appeals Board in Agency Adjudications, 57 Fed. Reg. 5,320 (Feb. 13, 1992)
6. EPA Review and Approval of State and Tribal Water Quality Standards, 65 Fed. Reg. 24641 (April 27, 2000)
7. Revisions to Procedural Rules Applicable in Permit Appeals, 78 Fed. Reg. 5281, 5282, 5284 (Jan. 25, 2013)
8. National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods (SSTM) for Permit Applications and Reporting Rule, 79 Fed. Reg. 49,001 (Aug. 19, 2014).
9. Revisions to the Permit Appeals Process to Restore the Organization and Function of the Environmental Appeals Board, 86 Fed. Reg. 31,172 (June 11, 2021).

N. STATE WATER QUALITY STANDARDS

1. N.H. Rev. Stat. Ann. § 485-A:8
2. N.H. Code Admin. R. Ann. Env Wq-1700
3. Connecticut Water Quality Standards, R.C.S.A. § 22a-426-1 *et seq.*