

New Hampshire

Sheet 1 of 2 - Biosolids Infrastructure & Quantities

WWTP Totals

| | 2004 Data | 2018 Data | |
|---|-----------------------------|-----------|-------|
| Total Number of WWTPs: | 34 (survey), 88 CWNS | 99 | |
| WWTP & Biosolids Infrastructure Totals | | | |
| Number of Separate Preparers (in- or out-of-state, receiving solids from your state): | 4 | 3 | ----- |
| Total number of your state's WWTPs sending to those Separate Preparers: | 8 | 19 | ----- |
| Number of operating sludge incinerators in your state (total): | 1 | 1 | ----- |
| Fluidized bed: | 1 | 0 | ----- |
| Multiple hearth: | 0 | 1 | ----- |
| Number of Part 258 landfills in your state accepting sewage sludge: | data not requested for 2004 | 6 | ----- |
| Number of WWTPs in your state with industrial pre-treatment programs: | data not requested for 2004 | 13 | ----- |
| Number of WWTPs in your state with sludge lagoons: | data not requested for 2004 | 41 | ----- |
| Wastewater Flow Totals | | | |
| Total statewide average daily wastewater flow (MGD): | data not requested for 2004 | 168.21 | ----- |
| Total statewide WWTP design capacity for wastewater flow (MGD): | data not requested for 2004 | 157 | ----- |
| Total statewide average daily dry weather flow (MGD): | data not requested for 2004 | no data | ----- |
| Other Totals | | | |
| Number of documented odor & nuisance complaints received by state in 2018 related to biosolids transportation and use or disposal outside of the gates of the WWTP: | data not requested for 2004 | 0 | ----- |
| Number of WWTPs involved in those complaints: | data not requested for 2004 | 0 | ----- |
| Percent of population served by on-site systems (e.g. septic systems): | 60% | 75% | ----- |

Two of the separate preparers are the residuals treatment facility of Resource Management, Inc. and Casella's Hawk Ridge Compost Facility (Unity, ME). Merrimack's WRRF compost facility also composts solids from other WRRFs. • The one sewage sludge incinerator (SS) in the state is at the Manchester WRRF and is used only for Manchester solids. • NH has 39 lagoons for wastewater solids, and there are two monofills that are designated for sewage sludge or biosolids only. • The NH Department of Environmental Services (NH DES) reports that the percentage of septic systems is an estimate from the Subsurface Bureau at NHDES. Some have stated 65% in the past, but they feel the number is closer to 75% now.

Biosolids Use and Disposal

| UNITS: | Dry U.S. tons | Dry U.S. tons | NH DES & many NH WRRFs track biosolids in wet tons. NBDP used its default percent solids of 22% to convert data to dry U.S. tons. | |
|--|---|-----------------------|---|-----------------------|
| BIOSOLIDS USED OR DISPOSED, 2018 (adjusted total): 26,200 | | | | |
| Summary | | | | |
| | Number of Entities (WWTPs & Sep. Preparers) Going To... | Quantity of Biosolids | Number of Entities (WWTPs & Sep. Preparers) Going To... | Quantity of Biosolids |
| Beneficial Use (applied to soils, not including ADC) | 17 | 18,509 | 8 | 10,397 |
| Disposal & Alternative Dispositions | 17 | 8,512 | 12 | 15,758 |
| Other | 0 | 0 | | |
| TOTAL | 34 | 27,021 | 20 | 26,154 |
| Beneficial Use | | | | |
| | Number of Entities (WWTPs & Sep. Preparers) Going To... | Quantity of Biosolids | Number of Entities (WWTPs & Sep. Preparers) Going To... | Quantity of Biosolids |
| Agricultural (EQ, Class A, & Class B) | 5 | 3,908 | 7 | 8,939 |
| Forestland (EQ, Class A, & Class B) | 0 | 0 | 0 | 0 |
| Reclamation (EQ, Class A, & Class B) | 4 | 180 | 0 | 0 |
| Class A EQ Distribution (bagged or bulk, public distribution, or unsure where it went) | 8 | 14,421 | 1 | 1,458 |
| Beneficial Use Subtotal | 17 | 18,509 | 8 | 10,397 |
| Long-term storage | 0 | 0 | 0 | 0 |
| Number of acres to which biosolids were applied: | 1,517 | | no data | |
| Disposal & Alternative Dispositions | | | | |

NOTE: Quantity of sewage sludge or biosolids used or disposed means the quantity that goes out the gate of the WWTPs. Quantities are in the units (the form of measurement) indicated above.

Data provided here are from the NH Department of Environmental Services (NH DES). A few data are from the NBDP survey.

NH DES requires a Sludge Quality Certificate (SOC) permit for any biosolids that are land applied. In 2018, 7 generators with SOC's sent 38,932 wet U.S. tons (8,565 dry U.S. tons) of biosolids to agriculture (Claremont WWTF, Concord Hall St WWTF, Winnepesaukee River Basin Program (WRBP), Plymouth Village Water and Sewer District, Woodsville Fire District WWTF, Nashua WWTF, and the RMI Residuals Management Facility). Some of these biosolids were Class A EQ (e.g., from Concord), and some were Class B (e.g., WRBP/Franklin, Nashua, and a few small facilities). Some were applied in NH and some were applied in neighboring states. • Merrimack WRRF sent 6,628 wet U.S. tons (1,458 dry U.S. tons) of Class A EQ biosolids compost to non-agricultural uses. • Merrimack takes in solids from several outside WRRFs, including from Milford and, beginning in 2020, from Winnepesaukee RBP/Franklin. • Other smaller compost operations are at Claremont and Woodsville. Some solids, such as from Seabrook, go to Casella's Hawk Ridge Compost Facility in Unity, ME. • Resource Management Inc. treats solids from several WRRFs, producing an alkaline-stabilized Class A (sometimes B) product that is generally land applied on farm fields. Plymouth also produces mostly Class A (but sometimes Class B) alkaline-stabilized biosolids used on farms. • In 2018, Concord produced alkaline-stabilized Class A biosolids (sometimes Class B) that were land applied at local farms; but, as of 2020, extra caution around the PFAS issue resulted in Concord sending non-lime-stabilized solids to Quebec for use in mine reclamation there. • Of the tonnage applied to agricultural land, 374 tons were Manchester sewage sludge incinerator (SSI) ash.

| | Number of Entities (WWTPs & Sep. Preparers) Going To... | Quantity of Biosolids | Number of Entities (WWTPs & Sep. Preparers) Going To... | Quantity of Biosolids |
|---|---|-----------------------------|---|-----------------------|
| Landfill (total) | 16 | 4,032 | 10 | 11,039 |
| Burial | data not requested for 2004 | data not requested for 2004 | 10 | 11,039 |
| Alternative daily (ADC), intermediate, or final cover | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Surface Disposal (i.e., beneficial reuse) | 0 | 0 | 0 | 0 |
| Incineration | 1 | 4,480 | 2 | 4,719 |
| Cement kiln or industrial furnace | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Deep well injection | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Gasification | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Pyrolysis | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Disposal & Alternative Dispositions Subtotal | 17 | 8,512 | 12 | 15,758 |
| TOTAL | 34 | 27,021 | 20 | 26,154 |

Most of the NH-generated wastewater solids landfilled in the state went to the Waste Management Turnkey Landfill in Rochester or to the Casella-owned and -operated landfill in Bethlehem. The landfilled tonnage reported here is the sum of the six operating lined landfills' quarterly reports of NH sludge received. This may not completely represent all the sludge landfilled, as some goes out of state. The number of entities sending solids to landfill - 10 - is a conservative estimate by NBDP. Large facilities sending solids to landfills include Berlin, Hanover, Keene, and Portsmouth. • Manchester owns and operates the one sewage sludge incinerator in NH. NH DES estimated 17,450 wet tons (3,839 dt) of NH solids were incinerated in 2018. However, Manchester reported to the NEIWPCC/NBDP survey a total of 4,188 dry metric tons (4,615 dry U.S. tons) incinerated in 2018, and this is the amount included for Manchester here. Ash from the Manchester SSI is stored in an ash lagoon at the WRRF, and much of it is then removed and used in soil blends and land applied. In 2018, 374 dry tons were used in this way, and that tonnage is included in the agriculture beneficial use line above. • A few small facilities, such as Peterborough, transport solids to disposal, mostly incineration, in southern New England. The 471 wet tons (94 dry metric tons) of Peterborough solids went to Cranston, RI, sewage sludge incinerator (SSA) in 2018.

Biosolids Quality Summary

| | Number of Entities (WWTPs & Sep. Preparers) Producing... | Quantity of Biosolids | Number of Entities (WWTPs & Sep. Preparers) Producing... | Quantity of Biosolids | NOTE: For "number of entities," the total may not match because some entities go to more than one use or disposal. |
|------------------------------|--|-----------------------|--|-----------------------|---|
| Class A EQ | 8 | 14,421 | 6 | 6,874 | In 2018, Class A EQ biosolids were produced by the Resource Management, Inc. facility, Plymouth, and Concord (all by lime stabilization) and, by composting at Merrimack, Claremont, and Woodsville. • NH DES estimated 24,617 wet U.S. tons (5,416 dt) as being Class A applied for agriculture. Add to that the 1,458 dt of Class A EQ general distribution to get the total Class A EQ shown here. (As in other states, pretty much all Class A biosolids are EQ.) • NH DES estimated 20,940 wet tons (4,607 dt) biosolids were Class B, some of which was landfilled. • The remaining solids tallied here as "other" are those landfilled and incinerated, which are not tested and classified. |
| Other Class A | 0 | 0 | 0 | 0 | |
| Class B | 46 | 3,908 | 3 | 4,607 | |
| Other (no data, etc.) | no data | 8,512 | 12 | 14,674 | |
| TOTAL | 54 | 26,841 | 21 | 26,154 | |

Biosolids Treatment Practices

| | Estimated Number of WWTPs or Separate Preparers Using... | Estimated Quantity of Biosolids Produced Using... | Estimated Number of WWTPs or Separate Preparers Using... | Estimated Quantity of Biosolids Produced Using... |
|---|--|---|--|---|
| Stabilization | | | | |
| Aerobic Digestion (total) | 0 | 0 | 0 | 0 |
| Class A (ATAD/Other) | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Class B | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Anaerobic digestion (AD) (total) | 3 | 3,298 | 3 | 3,081 |
| Class A (e.g. thermophilic) | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Class B (mesophilic) | data not requested for 2004 | data not requested for 2004 | 3 | 3,081 |
| WWTPs co-digesting (FOG, food, glycol, etc.) | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Biogas used (heating, electricity, fuel, etc.:scf/year) | data not requested for 2004 | data not requested for 2004 | 3 | no data |
| Lime/Alkaline (total) | 4 | 5,785 | 3 | 4,806 |
| Class A lime/alkaline | data not requested for 2004 | data not requested for 2004 | 2 | 1,747 |
| Class B lime/alkaline | data not requested for 2004 | data not requested for 2004 | 1 | 3,059 |
| Composting | 5 | 7,812 | 3 | 2,357 |
| Thermal (e.g. heat drying, not incineration/gasification/pyroly) | 0 | 0 | 0 | 0 |
| Gasification | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Pyrolysis | data not requested for 2004 | data not requested for 2004 | 0 | 0 |
| Hydrolysis (thermal, chemical, etc.) | data not requested for 2004 | data not requested for 2004 | 0 | N/A |
| Long-term (lagoons, reed beds, etc.) | 0 | 0 | 0 | N/A |
| Oxidation ditch / extended aeration | data not requested for 2004 | data not requested for 2004 | 0 | N/A |
| Other stabilization technology | 0 | 0 | 0 | N/A |
| Dewatering | | | | |
| Belt Filter Press | 12 | 7,850 | 10 | no data |
| Plate & Frame Press | 2 | 930 | 0 | no data |
| Screw Press | 0 | 0 | 4 | no data |
| Centrifuge | 0 | 0 | 3 | no data |
| Vacuum Filter | 0 | 0 | 0 | no data |
| Drying beds (open-air) | 4 | no data | 2 | no data |
| Solar drying (e.g. in greenhouse) | data not requested for 2004 | data not requested for 2004 | 0 | no data |
| Other dewatering technology | 0 | 0 | 0 | no data |
| Thickening | | | | |
| Gravity thickener | data not requested for 2004 | data not requested for 2004 | no data | no data |
| Gravity belt thickener (GBT) | data not requested for 2004 | data not requested for 2004 | no data | no data |
| Centrifuge | data not requested for 2004 | data not requested for 2004 | no data | no data |
| Dissolved air flotation (DAF) | data not requested for 2004 | data not requested for 2004 | no data | no data |
| Other thickening technology | data not requested for 2004 | data not requested for 2004 | no data | no data |
| Other | | | | |
| Biosolids sold in bags (explain at right what size bags) | data not requested for 2004 | data not requested for 2004 | 0 | 0 |

These data are estimates from NH DES and NBDP and are not complete.

State Pollutant (trace metal, etc.) Concentration Limits in Biosolids Applied to Land, 2018

Numbers entered only where state limits differed in 2018 from U.S. EPA limits.

| | Arsenic (As) | Cadmium (Cd) | Chromium (Cr) | Copper (Cu) | Lead (Pb) | Mercury (Hg) | Molybdenum (Mo) | Nickel (Ni) | Selenium (Se) | Zinc (Zn) |
|---|--------------|--------------|---------------|-------------|-----------|--------------|-----------------|-------------|-----------------|-----------|
| EPA Table 1 (mg/kg) | 75 | 85 | | 4300 | 840 | 57 | 75 | 420 | 100 | 7500 |
| EPA Table 3 (mg/kg) & CPLR (kg/ha) | 41 | 39 | | 1500 | 300 | 17 | | 420 | 36 (CPLR = 100) | 2800 |
| State ceiling limit (higher limit) (mg/kg) | 32 | 14 | 1000 | 1500 | 300 | 10 | 35 | 200 | 28 | 2500 |
| State high quality (lower number) limit (mg/kg) | 10 | 10 | 160 | 1000 | 270 | 7 | 18 | 98 | 18 | 1780 |
| State CPLR (kg/ha) | 10 | 15 | 300 | 300 | 200 | 6 | 18 | 100 | 100 | 500 |
| State APLR (kg/ha/365days) | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

TESTING

| For each of the following constituents, indicate if testing is required by your state, as of 2018. | Is testing required for all sewage sludge or biosolids? | Or is testing required only for biosolids being beneficially used as fertilizers and soil amendments? | Frequency of testing (indicate how often testing must be done for each parameter): | | If frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain: |
|---|---|---|--|--|---|
| | | | In accordance with Part 503 requirements | In accordance with other frequency required by state (if applicable, please specify) | |
| Part 503 metals (As, Cu, Hg, etc.) | no | yes | yes | 809.03 (C) (1-10) | Dry Ton Volume Distributed |
| Other metals (boron, silver...) | no | yes | no | Table 809-2 | Dry Ton Volume Distributed |
| Dioxins/furans | no | yes | no | 809.03 (C)(12) | Dry Ton Volume Distributed |
| PCBs | (please select) | yes | no | 809.03 (C) (11) | Dry Ton Volume Distributed |
| Priority pollutants (https://www.epa.gov/sites/production/files/2015-09/documents/priority-pollutant-list-epa.pdf) | (please select) | yes | no | Table 809-2 | Dry Ton Volume Distributed |
| Other organic compounds (e.g. PDBEs, pharmaceutical) | (please select) | no | no | n/a | n/a |
| Radioactive isotopes (alpha, beta, Ra 226, etc.) | (please select) | no | no | n/a | n/a |
| Nutrients (NPK) | (please select) | yes | yes | Table 809-2 | Dry Ton Volume Distributed |
| Pathogen reduction (Class A or B) | (please select) | yes | no | EPA Report | Dry Ton Volume Distributed |
| Vector attraction reduction (VAR) | (please select) | yes | no | EPA Report | Dry Ton Volume Distributed |
| PFAS (as of 2018) | (please select) | no | no | n/a | n/a |
| Microplastics (as of 2018) | (please select) | no | no | n/a | n/a |
| TCLP (toxicity characteristic leaching procedure) | (please select) | no | no | n/a | n/a |
| Paint Filter Liquids Test | yes | no | no | n/a | n/a |

PFAS monitoring and reporting were put into the NH DES Sludge Quality Certification (SQC) regulations in the spring 2019.

REPORTING

| For each of the following, indicate what WWTPs and/or biosolids preparers must report to the state: | Is reporting to the state required for these parameters? | Frequency of reporting (indicate how often testing must be done for each parameter): | | How are these data stored by the state? | Are data compiled by the state in reports or summaries? If so, please attach. |
|---|--|--|---|---|---|
| | | In accordance with Part 503 requirements | In accordance with other frequency required (if applicable, please specify) | | |
| The amounts of biosolids/ sewage sludge used or disposed | yes | yes | Annual Report | electronic | yes |
| Part 503 metals (As, Cu, Hg, etc.) | yes | yes | Annual Report | electronic | yes |
| Other metals (boron, silver...) | yes | no | Annual Report | electronic | yes |
| Dioxins/furans | yes | no | Annual Report | electronic | yes |
| PCBs | yes | no | Annual Report | electronic | yes |
| Priority pollutants (https://www.epa.gov/sites/production/files/2015-09/documents/priority-pollutant-list-epa.pdf) | yes | no | Annual Report | electronic | yes |
| Other organic compounds (e.g. PDBEs, pharmaceutical) | no | no | | | |
| Radioactive isotopes (alpha, beta, Ra 226, etc.) | no | no | | | |
| Nutrients (NPK) | yes | yes | Annual Report | electronic | yes |
| Cumulative Pollutant Loading Rates (CPLR) | no | no | | | |
| How biosolids achieve Class A or Class B | yes | yes | Annual Report | electronic | yes |
| How biosolids achieve vector attraction reduction (VAR) | yes | yes | Annual Report | electronic | yes |
| Solids stabilization process(es) used | yes | yes | Annual Report | electronic | yes |
| Other biosolids treatments | no | no | | | |
| End use or disposal practice | yes | no | Annual Report | electronic | yes |
| PFAS (as of 2018) | no | no | | | |
| Microplastics (as of 2018) | no | no | | | |
| TCLP (toxicity characteristic leaching procedure) | no | no | | | |
| Paint Filter Liquids Test | yes | no | | | |