

Rhode Island

Infrastructure & Wastewater

	2004 Data	2018 Data	
Total Number of WWTPs:	22 (survey), 20 CWNS	20	
WWTP & Biosolids Infrastructure Totals			
Number of Separate Preparers (in- or out-of-state, receiving solids from your state):	0	0	-----
Total number of your state's WWTPs sending to those Separate Preparers:	0	0	-----
Number of operating sludge incinerators in your state (total):	2	3	-----
Fluidized bed:	1	1	-----
Multiple hearth:	1	2	-----
Number of Part 258 landfills in your state accepting sewage sludge:	data not requested for 2004	1	-----
Number of WWTPs in your state with industrial pre-treatment programs:	data not requested for 2004	15	-----
Number of WWTPs in your state with <i>sludge</i> lagoons:	data not requested for 2004	0	-----
Wastewater Flow Totals			
Total statewide average daily wastewater flow (MGD):	data not requested for 2004	120	-----
Total statewide WWTP <i>design</i> capacity for wastewater flow (MGD):	data not requested for 2004	203	-----
Total statewide average daily <i>dry weather</i> 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):	no data	36%	-----

RI has two incineration facilities/sites (Cranston and Woonsocket) with one facility having two incinerators; so, total number of incinerators is three, but total number of WRRFs with incinerators is two. • There is one landfill in RI, the state-created Resource Recovery Corporation landfill in Johnston. • The wastewater flow design capacity shown is based on the permitted monthly average flow limits for all permitted WRRFs combined.

Biosolids Use and Disposal

UNITS:	Dry metric tons	Dry metric tons	
BIOSOLIDS USED OR DISPOSED, 2018 (adjusted total): 30,010			
Summary			
	Number of Entities (WWTPs & Sep. Preparers) Going To...	Quantity of Biosolids	Quantity of Biosolids
Beneficial Use (applied to soils, not including ADC)	2	2,001	452
Disposal & Alternative Dispositions	20	25,432	29,554
Other	0	0	0
TOTAL	22	27,433	30,006
Beneficial Use			
	Number of Entities (WWTPs & Sep. Preparers) Going To...	Quantity of Biosolids	Quantity of Biosolids
Agricultural (EQ, Class A, & Class B)	0	0	0
Forestland (EQ, Class A, & Class B)	0	0	0
Reclamation (EQ, Class A, & Class B)	0	0	0
Class A EQ Distribution (bagged or bulk, public distribution, or unsure where it went)	2	2,001	452
Beneficial Use Subtotal	2	2,001	452
Long-term storage	0	0	0
Number of <i>acres</i> to which biosolids were applied:	no data		no data
Disposal & Alternative Dispositions			
	Number of Entities (WWTPs & Sep. Preparers) Going To...	Quantity of Biosolids	Quantity of Biosolids
Landfill (total)	4	1,016	1,428
Burial	data not requested for 2004	data not requested for 2004	1,428

Bristol is the one producer of biosolids for beneficial use; it composts. No data are available for the number of acres to which those biosolids were applied because tracking is not required for distribution/use of EQ biosolids. In 2018, Bristol compost was marketed by Agresource, and much of it went out of state, mostly to MA. • There are Class A EQ biosolids products that are part of the fertilizer and soil amendment markets that come into Rhode Island from other states. A prominent example is the EQ biosolids product from Boston's MWRA, which is a popular fertilizer in the robust sod/turf farming industry in central Rhode Island.

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	16	24,416	20	28,126
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	20	25,432	27	29,554
TOTAL	22	27,433	28	30,006

in 2018, 19 major RI WRRFs and one package plant sent solids to one or the other of the two sewage sludge incinerators (SSI) in RI or to one SSI outside of RI. • Note that some WRRFs used multiple disposal outlets (landfill and incineration).

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	2	2,001	1	452	
Other Class A	0	0	0	0	
Class B	0	0	0	0	
Other (no data, etc.)	20	25,432	19	29,554	
TOTAL	22	27,433	20	30,006	

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)	0	0	1	1,867	
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	1	1,867	
WWTPs co-digesting (FOG, food, glycol, etc.)	data not requested for 2004	data not requested for 2004	0	N/A	
Biogas used (heating, electricity, fuel, etc.;scf/year)	data not requested for 2004	data not requested for 2004	0	N/A	
Lime/Alkaline (total)	4	781	0	0	
Class A lime/alkaline	data not requested for 2004	data not requested for 2004	0	0	
Class B lime/alkaline	data not requested for 2004	data not requested for 2004	0	0	
Composting	2	2,001	1	452	
Thermal (e.g. heat drying, not incineration/gasificatn/pyrol)	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	0	
Dewatering					
Belt Filter Press	6	10,920	3	713	
Plate & Frame Press	0	0	0	0	
Screw Press	0	0	1	201	
Centrifuge	3	10,073	5	21,376	
Vacuum Filter	0	0	0	0	
Drying beds (open-air)	0	0	0	0	
Solar drying (e.g. in greenhouse)	data not requested for 2004	data not requested for 2004	0	0	
Other dewatering technology	0	0	2	2,759	
Thickening					
Gravity thickener	data not requested for 2004	data not requested for 2004	7	no data	
Gravity belt thickener (GBT)	data not requested for 2004	data not requested for 2004	3	no data	
Centrifuge	data not requested for 2004	data not requested for 2004	0	0	
Dissolved air flotation (DAF)	data not requested for 2004	data not requested for 2004	0	0	
Other thickening technology	data not requested for 2004	data not requested for 2004	4	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	

"Other dewatering technology" is rotary presses used at two WWTPs. • "Other thickening technology" is rotary drum thickeners at four WWTPs. • Note that six WRRFs have no thickening equipment. No data provided for thickened sludge volume since WRRFs are not required to report thickened sludge volumes. Also, some WRRFs only thicken a portion of the sludge generated, making it difficult to estimate thickened sludge volumes.

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)										
State high quality (lower number) limit (mg/kg)										
State CPLR (kg/ha)										
State APLR (kg/ha/365days)										

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		
Other metals (boron, silver...)	no	no	not applicable (N/A)		
Dioxins/furans	no	no	not applicable (N/A)		
PCBs	no	no	not applicable (N/A)		
Priority pollutants (https://www.epa.gov/sites/production/files/2015-09/documents/priority-pollutant-list-epa.pdf)	no	no	not applicable (N/A)		
Other organic compounds (e.g. PDBEs, pharmaceutical)	no	no	not applicable (N/A)		
Radioactive isotopes (alpha, beta, Ra 226, etc.)	no	no	not applicable (N/A)		
Nutrients (NPK)	no	yes	yes		
Pathogen reduction (Class A or B)	no	yes	yes		
Vector attraction reduction (VAR)	no	yes	yes		
PFAS (as of 2018)	no	no	not applicable (N/A)		
Microplastics (as of 2018)	no	no	not applicable (N/A)		
TCLP (toxicity characteristic leaching procedure)	no	yes	not applicable (N/A)	Yearly	
Paint Filter Liquids Test	no	no	not applicable (N/A)		

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	no	Monthly	electronic	no
Part 503 metals (As, Cu, Hg, etc.)	yes	yes		electronic	no
Other metals (boron, silver...)	no	not applicable (N/A)		not applicable (N/A)	no
Dioxins/furans	no	not applicable (N/A)		not applicable (N/A)	no
PCBs	no	not applicable (N/A)		not applicable (N/A)	no
Priority pollutants (https://www.epa.gov/sites/production/files/2015-09/documents/priority-pollutant-list-epa.pdf)	no	not applicable (N/A)		not applicable (N/A)	no
Other organic compounds (e.g. PDBEs, pharmaceutical)	no	not applicable (N/A)		not applicable (N/A)	no
Radioactive isotopes (alpha, beta, Ra 226, etc.)	no	not applicable (N/A)		not applicable (N/A)	no

Nutrients (NPK)	yes	yes		electronic	no
Cumulative Pollutant Loading Rates (CPLR)	yes	yes		not applicable (N/A)	no
How biosolids achieve Class A or Class B	yes	yes		electronic	no
How biosolids achieve vector attraction reduction (VAR)	yes	yes		electronic	no
Solids stabilization process(es) used	yes	yes		electronic	no
Other biosolids treatments	no	not applicable (N/A)		not applicable (N/A)	no
End use or disposal practice	yes	not applicable (N/A)	Monthly	electronic	no
PFAS (as of 2018)	no	not applicable (N/A)		not applicable (N/A)	no
Microplastics (as of 2018)	no	not applicable (N/A)		not applicable (N/A)	no
TCLP (toxicity characteristic leaching procedure)	yes	not applicable (N/A)	Yearly	electronic	no
Paint Filter Liquids Test	no	not applicable (N/A)		not applicable (N/A)	no

