



STATE BIOSOLIDS SURVEY

2018 data
conducted 2020-2021
biosolidsdata.org

South Carolina

Infrastructure & Wastewater

	2004 Data	2018 Data	
Total Number of WWTPs:	32 (survey), 173 CWNS	56	
WWTP & Biosolids Infrastructure Totals			
Number of Separate Preparers (in- or out-of-state, receiving solids from your state):	6	0	-----
Total number of your state's WWTPs sending to those Separate Preparers:	no data	0	-----
Number of operating sludge incinerators in your state (total):	0	0	-----
Fluidized bed:	0	0	-----
Multiple hearth:	0	0	-----
Number of Part 258 landfills in your state accepting sewage sludge:	data not requested for 2004	several	-----
Number of WWTPs in your state with industrial pre-treatment programs:	data not requested for 2004	no data	-----
Number of WWTPs in your state with sludge lagoons:	data not requested for 2004	several	-----
Wastewater Flow Totals			
Total statewide average daily wastewater flow (MGD):	data not requested for 2004	504	-----
Total statewide WWTP design capacity for wastewater flow (MGD):	data not requested for 2004	no data	-----
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	see notes	-----
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	30%	-----

Data presented here are mostly from the U.S. EPA's ECHO database to which 44 SC water resource recovery facilities (WRRFs) reported managing solids in 2018; additional data came from the NBDP survey of WRRFs (+1 WRRF). Biosolids quantities and management practices were estimated for an additional 11 WRRFs. Estimated quantities of solids produced at these 11 facilities were calculated based on a statewide average of annual solids produced per million gallons of daily wastewater flow (~161 dmt per 1 MGD). With these estimates, the totals presented here represent ~76% of SC's daily wastewater flow (and presumably at least 76% of its solids and likely almost all, because small facilities may not produce solids every year or may transport them to other facilities). NBDP's standard is to represent at least 75% of a state's total wastewater flow in solids data. • Statewide average daily wastewater flow is from Seiple et al. 2020. • Regarding inspections, SC DHEC notes: "Inspections are incorporated into permitting – land app site should be inspected at same time as WWTP per their permit; # of inspections has decreased throughout the years due to staff shortages and turnover. One permit associated with sludge management, another with WWTP – both inspections supposed to happen at same time. EPA Region 4 inspects land application sites too sometimes." • Estimate of % of population using on-site systems is by NBDP based on online news sources.

Biosolids Use and Disposal

UNITS:	Dry metric tons	Dry metric tons	
BIOSOLIDS USED OR DISPOSED, 2018 (adjusted total): 59,000			
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)	15	14,063	39 18,631
Disposal & Alternative Dispositions	17	23,301	34 40,686
Other	0	0	6 1,202
TOTAL	32	37,364	79 59,317
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)	14	14,035	31 16,631
Forestland (EQ, Class A, & Class B)	1	28	8 2,000
Reclamation (EQ, Class A, & Class B)	0	0	0 0
Class A EQ Distribution (bagged or bulk, public distribution, or unsure where it went)	0	0	0 0
Beneficial Use Subtotal	15	14,063	39 18,631
Long-term storage	0	0	no data no data
Number of acres to which biosolids were applied:	no data		no data
Disposal & Alternative Dispositions			

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

Data are from reports by 44 WRRFs in the U.S. EPA ECHO database for 2018. Additional information from 3 SC responses to the NBDP survey (+1 WRRF). NBDP then estimated data for 11 facilities; the end use/disposal method of solids was determined through online sources, and the tonnages were estimated by multiplying the average dry metric tons (dmt) per MGD for the state by the MGD of each WRRF. For 3 WRRFs for which management practices could not be determined by NBDP, and use/disposal methods and quantities were estimated by calculating the statewide percentages of landfilled and land applied biosolids, then applying that proportion to the estimated solids produced at each of the three WRRFs, splitting the totals between landfill burial and land application (the two most common management practices in SC). • Six WRRFs reported transferring a total of 1,202 dmt of solids to other facilities for treatment. Those tons are assumed to have been counted in the totals of the facilities performing the final treatment and are not included in the totals reported here.

Most recycled SC biosolids are Class B and are used on farms; ReWa is the leading recycler, putting to use >5,000 dmt from its 7 WRRFs in 2018. There are two Class A EQ products that are included here in the >16,000 dmt of biosolids used in agriculture. The Aiken County/Horse Creek WRRF in Beech Island heat-dried biosolids are used by a farm in Wagner for fertilizing Bermuda grass hay, and Sumter's WRRF heat-dried fertilizer is used in agriculture, mostly in Florida. • The Grand Strand Water and Sewer Authority, which includes Myrtle Beach, operates a regional composting facility in Conway, using a combined ~3,500 dmt of its solids to produce Class A EQ biosolids compost that is mostly used on two tree farms (NBDP estimate: 2,000 dmt) and a turf farm owned by the utility, as well as on some private farms.

	Number of Entities (WWTPs & Sep. Preparers) Going To...	Quantity of Biosolids	Number of Entities (WWTPs & Sep. Preparers) Going To...	Quantity of Biosolids
Landfill (total)	15	20,419	32	37,763
Burial	data not requested for 2004	data not requested for 2004	32	37,763
Alternative daily (ADC), intermediate, or final cover	data not requested for 2004	data not requested for 2004	0	0
Surface Disposal	1	4	0	0
Incineration	1	2,878	2	2,923
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	23,301	34	40,686
TOTAL	32	37,364	73	59,317.11

Landfill disposal is relied on by Charleston (in 2018, >80% of its solids went to landfill and the rest was land applied), North Charleston, Spartanburg, Columbia, Mount Pleasant, Summerville, Goose Creek, Hilton Head, Florence, and many other WRRFs. • South Carolina has no sewage sludge incinerators (SSIs); the incinerated solids noted here went to the SSI in Concord, NC, owned and operated by the Water & Sewer Authority of Cabarrus County.

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	2,813	8	5,522	
Other Class A	0	0	1	637	
Class B	5	4,096	24	11,183	
Other (no data, etc.)	25	30,454	32	41,975	"Other" includes solids for which quality was not known or not tracked (e.g. because solids were landfilled).
TOTAL	32	37,363	65	59,317	

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)	no data	no data	18	
Class A (ATAD/Other)	data not requested for 2004	data not requested for 2004		
Class B	data not requested for 2004	data not requested for 2004		
Anaerobic digestion (AD) (total)	no data	no data	6	
Class A (e.g. thermophilic)	data not requested for 2004	data not requested for 2004		
Class B (mesophilic)	data not requested for 2004	data not requested for 2004		
WWTPs co-digesting (FOG, food, glycol, etc.)	data not requested for 2004	data not requested for 2004		N/A
Biogas used (heating, electricity, fuel, etc. scf/year)	data not requested for 2004	data not requested for 2004		N/A
Lime/Alkaline (total)	no data	no data	2	
Class A lime/alkaline	data not requested for 2004	data not requested for 2004		
Class B lime/alkaline	data not requested for 2004	data not requested for 2004		
Composting	no data	no data	5	3,529
Thermal (e.g. heat drying, not incineration/gasification/pyroly)	no data	no data	3	
Gasification	data not requested for 2004	data not requested for 2004		
Pyrolysis	data not requested for 2004	data not requested for 2004		
Hydrolysis (thermal, chemical, etc.)	data not requested for 2004	data not requested for 2004		N/A
Long-term (lagoons, reed beds, etc.)	no data	no data		N/A
Oxidation ditch / extended aeration	data not requested for 2004	data not requested for 2004		N/A
Other stabilization technology	no data	no data		
Dewatering				
Belt Filter Press	no data	no data		
Plate & Frame Press	no data	no data		
Screw Press	no data	no data		
Centrifuge	no data	no data		
Vacuum Filter	no data	no data		
Drying beds (open-air)	no data	no data	3	
Solar drying (e.g. in greenhouse)	data not requested for 2004	data not requested for 2004		
Other dewatering technology	no data	no data		
Thickening				
Gravity thickener	data not requested for 2004	data not requested for 2004		
Gravity belt thickener (GBT)	data not requested for 2004	data not requested for 2004		
Centrifuge	data not requested for 2004	data not requested for 2004		
Dissolved air flotation (DAF)	data not requested for 2004	data not requested for 2004		
Other thickening technology	data not requested for 2004	data not requested for 2004		
Other				
Biosolids sold in bags (explain at right what size bags)	data not requested for 2004	data not requested for 2004	0	0

Data presented here are very partial; they come from the U.S. EPA ECHO database entries for SC WRRFs that reported 2018 data.