NATIONAL BIOSOLIDS DATA PROJECT

STATE BIOSOLIDS SURVEY

2018 data
conducted 2020-2021
biosolidsdata.org

Iowa

Infrastructure & Wastewater

	2004 Data	2018 Data	
Total Number of WWTPs:	**78 (survey), 730 CWNS**	**871**	
WWTP & Biosolids Infrastructure Totals			
Number of Separate Preparers (in- or out-of-state, receiving solids from your state):	no data	1	----------
Total number of your state's WWTPs sending to those Separate Preparers:	0	1	----------
Number of operating sludge incinerators in your state (total):	2	1	----------
Fluidized bed:	1	0	----------
Multiple hearth:	1	1	----------
Number of Part 258 landfills in your state accepting sewage sludge:	data not requested for 2004	0	----------
Number of WWTPs in your state with industrial pre-treatment programs:	data not requested for 2004	20	----------
Number of WWTPs in your state with *sludge* lagoons:	data not requested for 2004		----------
Wastewater Flow Totals			
Total statewide average daily wastewater flow (MGD):	data not requested for 2004	507	----------
Total statewide WWTP *design* capacity for wastewater flow (MGD):	data not requested for 2004	667	----------
Total statewide average daily *dry weather* flow (MGD):	data not requested for 2004	348	----------
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	25%	----------

The 871 WWTPs are all municipal WWTPs. • Davenport City is the 1 separate preparer, composting Davenport biosolids. • Iowa has 871 municipal WWTPs that have NPDES discharge permits. Our major POTWs are 107 facilities (in 2020) based on the design average wet weather flow equal to or greater than 1 MGD. The design AWW flow for the 107 facilities ranges from 1 mgd to 134 mgd. • Major POTW facilities have biosolids annual reporting requirements to EPA and state. Minor facilities keep their biosolids report at their site. • Design flow definitions are in the Iowa Wastewater Facilities Design Standards Chapter 14. • The average dry weather flow in this survey is based on the average of the facility's design average dry weather flow, which is 3.248 MGD. The average statewide wastewater design capacity is based on the average of the facility's design average wet weather flow, (the same number that designates a "major" facility), and is 6.236 mgd. The statewide average daily wastewater flow is the average of the ADW and AWW, in design. We did not run the DMR flow data for the actual average daily wastewater flow. All the flow numbers reported here are based on the wastewater treatment plant design flow in the construction permits that are approved by Iowa DNR. • Two dozen or more wastewater facilities are lagoon facilities that do not desludge every year. The survey data reported here are based on those POTWs that sent annual reports for biosolids land application.

Biosolids Use and Disposal

UNITS:	**Dry U.S. tons**	**Dry metric tons**
BIOSOLIDS USED OR DISPOSED, 2018 (adjusted total):		**61,800**

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)	76	50,200	81	48,401
Disposal & Alternative Dispositions	2	16,460	1	13,398
Other	0	0	0	0
TOTAL	**78**	**66,660**	**82**	**61,799**

NOTE: Quantity of sewage sludge or biosolids used or disposed means the quantity that goes out the gate of the WWTPs. Use the units (the form of measurement) you chose above.

The beneficial use numbers include some composted biosolids. The disposal numbers include incinerated biosolids. There is no Iowa wastewater sludge going to landfill. State law prohibits Class A and Class B biosolids going to landfill. Solid Waste Rule 121 on land application of waste, discourages sewage sludge going to landfill.

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)	65	48,200	80	44,413
Forestland (EQ, Class A, & Class B)	0	0	0	0
Reclamation (EQ, Class A, & Class B)	0	0	0	0
Class A EQ Distribution (bagged or bulk, public distribution, or unsure where it went)	11	2,000	1	3,988
Beneficial Use Subtotal	**76**	**50,200**	**81**	**48,401**
Long-term storage	0	0	0	0
Number of *acres* to which biosolids were applied:		data not provided		18,889

The Class A EQ material is composted biosolids sold to the market. This program is a separate preparer in Davenport, IA: the city's Composting Facility.

Disposal & Alternative Dispositions

	Number of Entities (WWTPs & Sep. Preparers) Going To…	Quantity of Biosolids	Number of Entities (WWTPs & Sep. Preparers) Going To…	Quantity of Biosolids
Landfill (total)	0	0	1	3,055

Burial	data not requested for 2004	data not requested for 2004	0	0	
Alternative daily (ADC), intermediate, or final cover	data not requested for 2004	data not requested for 2004	1	3,055	
Surface Disposal	0	0	0	0	
Incineration	2	16,460	1	13,398	The material included as ADC (row 49) is the ash from Cedar Rapids' incinerator that went to landfill ADC. The mass of this landfilled ash is not included in the disposal total, so as not to be double-counted.
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	**2**	**16,460**	**1**	**13,398**	
TOTAL	**78**	**66,660**	**82**	**61,799**	

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	11	5,200	2	6,374	
Other Class A	0	0	0	0	
Class B	65	45,000	79	42,027	The two facilities producing EQ biosolids are Davenport's composting facility and Iowa City's WWTP.
Other (no data, etc.)	0	16,460	1	13,398	
TOTAL	**76**	**66,660**	**82**	**61,799**	

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)	25	no data	35	8,206	
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	35	8,206	
Anaerobic digestion (AD) (total)	44	no data	46	33,435	
Class A (e.g. thermophilic)	data not requested for 2004	data not requested for 2004	3	2,406	
Class B (mesophilic)	data not requested for 2004	data not requested for 2004	45	31,029	
WWTPs co-digesting (FOG, food, glycol, etc.)	data not requested for 2004	data not requested for 2004	at least Des Moines	N/A	
Biogas used (heating, electicity, fuel, etc.;scf/year)	data not requested for 2004	data not requested for 2004	13	N/A	
Lime/Alkaline (total)	8	no data	3	880	
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	3	880	
Composting	1	no data	1	3,988	
Thermal (e.g. heat drying, not incineration/gasificatn/pyrol)	0	no data	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	no data		N/A	
Oxidation ditch / extended aeration	data not requested for 2004	data not requested for 2004	0	N/A	
Other stabilization technology	0	no data	1	13,398	Cedar Rapids WWTP sends sewage sludge to incineration. It used low pressure oxidation (LPO) on secondary sludge to stabilize sludge. They produced 13,398 dry tons of sludge in 2018. The "Other" stabilization technology (row 88) is this LPO. • "Other" dewatering technologies include reed beds, rotary press, Fournier Press, and more. • "Other" thickening technology includes rotary drum thickener.
Dewatering					
Belt Filter Press	4	no data	11	65,676	
Plate & Frame Press	0	no data	2	4,614	
Screw Press	0	no data	1	119	
Centrifuge	3	no data	5	27,242	
Vaccuum Filter	5	no data	0	0	
Drying beds (open-air)	25	no data	9	12,548	
Solar drying (e.g. in greenhouse)	data not requested for 2004	data not requested for 2004	0	0	
Other dewatering technology	0	no data	8	1,435	
Thickening					
Gravity thickener	data not requested for 2004	data not requested for 2004	9	19,579	
Gravity belt thickener (GBT)	data not requested for 2004	data not requested for 2004	6	2,013	
Centrifuge	data not requested for 2004	data not requested for 2004	1	968	
Dissolved air flotation (DAF)	data not requested for 2004	data not requested for 2004	5	15,798	
Other thickening technology	data not requested for 2004	data not requested for 2004	12	5,002	
Other					
Biosolids sold in bags (explain at right what size bags)	data not requested for 2004	data not requested for 2004	0	0	

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

Enter numbers 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			Iowa biosolids testing parameters, limits, and testing frequency are identical to 40 CFR 503.
Other metals (boron, silver…)	no	no	no			
Dioxins/furans	no	no	no			
PCBs	no	no	no			
Priority pollutants (https://www.epa.gov/sites/production/files/2015-09/documents/priority-pollutant-list-epa.pdf))	no	no	no			
Other organic compounds (e.g. PDBEs, pharmaceutical)	no	no	no			
Radioactive isotopes (alpha, beta, Ra 226, etc.)	no	no	no			
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	no			
Microplastics (as of 2018)	no	no	no			
TCLP (toxicity characteristic leaching procedure)	no	no	no			
Paint Filter Liquids Test	no	no	no			

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? Is 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		electronic	yes	Iowa biosolids regulation only has a land application rule. Iowa does not have surface disposal and incineration rules. Landfilling is discouraged. • Iowa's biosolids land application rule mirrors federal 40 CFR 503 in most areas, but includes a few best management practices that suit the state's agricultural and land use conditions. • In 2016, Iowa changed the biosolids annual reports submittal requirement from paper reporting to electronic reporting. For the items and data in the annual report that are required by EPA biosolids annual electronic reporting, Iowa asks the same of WWTPs. WWTPS can use EPA's report to satisfy state reporting needs. For the information that is not required by EPA, Iowa developed a supplemental form for WWTPs to submit. Information in IA's supplemental report covers the location of land application sites, total annual biosolids applied on each site, size of the parcel, etc. • CPLR needs to be developed if any limit in 40 CFR Part 503 Table 3 is exceeded by a WWTP.
Part 503 metals (As, Cu, Hg, etc.)	yes	yes		electronic	yes	
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	yes	
Cumulative Pollutant Loading Rates (CPLR)	yes	yes		electronic	yes	
How biosolids achieve Class A or Class B	yes	yes		electronic	yes	
How biosolids achieve vector attraction reduction (VAR)	yes	yes		electronic	yes	
Solids stabilization process(es) used	yes	yes		electronic	yes	
Other biosolids treatments	yes	yes		electronic	yes	
End use or disposal practice	yes	yes		electronic	yes	
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)	no	not applicable (N/A)		not applicable (N/A)	no	
Paint Filter Liquids Test	no	not applicable (N/A)		not applicable (N/A)	no	