Fact Sheet
Calendar Year 2025
Biosolids Land Application Program
Moccasin Bend WWTP
NPDES Permit No. TN 0024210
City of Chattanooga, Tennessee

General

The information contained in this fact sheet is based on information submitted to the EPA and state regulatory agencies as part of the 40 CFR Part 503 Annual Sludge Report for 2025 (40 CFR Part 503.18).

Quantities Produced and Land Applied

Annual Quantities

- 74,945 Wet Tons/year
- 24,887 Dry Tons/year
- 22,577 Dry Metric Tons/year

Monthly Quantities

Month	Wet Tons	Dry Tons	Dry Metric Tons
January	5,821	1,920	1,742
February	5,897	1,935	1,756
March	6,879	2,253	2,044
April	6,231	2,044	1,854
May	5,475	1,798	1,631
June	5,469	1,815	1,647
July	6,986	2,329	2,113
August	6,778	2,268	2,057
September	6,909	2,298	2,085
October	5,386	1,801	1,633
November	6,677	2,243	2,035
December	6,437	2,184	1,982

Quantities Land Applied by State

State	Wet Tons	Dry Tons	Dry Metric Tons
AL	12,395	4,124	3,742
TN	62,550	20,763	18,836

Quantities Land Applied by County

State	County	Wet Tons	Dry Tons	Dry Metric Tons
AL	Jackson	12,395	4,124	3,742
TN	Bledsoe	32,276	10,642	9,654
TN	Cumberland	17,687	5,917	5,368
TN	Grundy	2,925	977	886
TN	Polk	860	291	264
TN	Rhea	753	247	224
TN	Sequatchie	2,235	751	681
TN	Van Buren	5,814	1,939	1,759

Land Application Area

Total Acres Land Applied - By State

State	Acres	Hectares
AL	609	246
TN	7,915	3,203

Number of Farms and Total Acres Land Applied - By County

State	County	Acres	Hectares	Farms
AL	Jackson	609	246	22
TN	Bledsoe	3,435	1,390	140
TN	Cumberland	1,595	646	65
TN	Grundy	336	136	18
TN	Polk	1,622	656	1
TN	Rhea	66	27	3
TN	Sequatchie	221	89	7
TN	Van Buren	639	259	22

Total Historic Land Application Acreage - By State

State	Acres	Hectares
AL	11,397	4,612
TN	50,485	20,431

Total Historic Land Application Acreage - By County

State	County	Acres	Hectares
AL	Blount	899	364
AL	Cherokee	40	16
AL	DeKalb	1,888	764
AL	Etowah	170	69
AL	Jackson	6,146	2,487
AL	Madison	100	40
AL	Marshall	2,155	872
TN	Bledsoe	11,268	4,560
TN	Coffee	220	89
TN	Cumberland	4,424	1,790
TN	Federal Site	191	77
TN	Franklin	1,283	519
TN	Grundy	4,483	1,814
TN	Hamilton	3,587	1,452
TN	Marion	5,700	2,307
TN	Meigs	2,261	915
TN	Polk	1,622	656
TN	Rhea	3,486	1,411
TN	Sequatchie	4,099	1,659
TN	Van Buren	6,741	2,728
TN	Warren	1,118	453

Monitoring Requirements

- Minimum Monitoring Requirements (40 CFR Part 503.16, Table 1) -- For a plant generating greater than or equal to 15,000 metric tons per year, the required minimum monitoring frequency is once per month.
- City Monitoring Practices:

Total Solids, pH (grab samples)	Daily
Nutrients (N, P and K); Other Nutrients (Ca, Fe, B, and S) Regulated Metals; Fecal Coliform; and Total Solids (composite sample)	Once/Week
Pathogens for Class A and Class B biosolids	Once/Month
Pathogens (Dewatering Feed Solids)	Once/Quarter
PCB and TCLP	Once/Year

Quality Assurance/Quality Control

- Class B Biosolids (Pathogen Reduction 40 CFR 503.32) -- Biosolids may be land applied with stipulated restrictions and setbacks as defined in the regulations (40 CFR Part 503.14).
- Vector Attraction Reduction - Addition of Alkali (40 CFR 503.33(b)(6)) -- Biosolids are stabilized by the addition of lime kiln dust and raising the pH to greater than 12.0 for two (2) hours and retaining pH at or above 11.5 for an additional 22 hours as required by regulation.

Pollutant Concentrations (40 CFR Part 503.13 Table 3)

Pollutant	*Monthly Avg. Allowable conc. (mg/kg)*	*Measured Conc. (mg/kg)*	*% of Allowable Conc.*
Arsenic	41	10.14	24.7%
Cadmium	39	1.17	3.0%
Chromium	N/A	17.09	N/A
Copper	1,500	95.49	6.4%
Lead	300	17.32	5.8%
Mercury	17	0.19	1.1%
Molybdenum	N/A	11.25	N/A
Nickel	420	40.45	9.6%
Selenium	100	10.27	10.3%
Zinc	2,800	498.61	17.8%

Data are averaged over 52 sampling events in 2025.

Potential Value of Nutrients in Biosolids

Value of Commercial Nutrients

● Nitrogen (N)	$1,280	/Ton, 100-0-0
● Phosphorous as phosphate (P2O5)	$868	/Ton, 0-100-0
● Potassium as potassium oxide (K2O)	$1,019	/Ton, 0-0-100
● Ag Lime as calcium carbonate (CaCO3)	$37	/Ton, CCE=100

Prices are scaled up as needed to represent the cost of "pure" nutrients: 100-0-0, 0-100-0, 0-0-100, and CCE=100, respectively.
Values are based on regional ag-coop prices, adjusted to include hauling and spreading costs for a typical corn grain crop.

Value of Nutrients in Biosolids

● Ammonia Nitrogen (NH4 as N)	$4.30	/Dry Ton
● Organic Nitrogen (as N)	$22.65	/Dry Ton
● Phosphorous as phosphate (P2O5)	$15.43	/Dry Ton
● Potassium as potassium oxide (K2O)	$4.62	/Dry Ton
● Ag Lime as calcium carbonate (CaCO3)	$2.45	/Dry Ton
● Total:	$49.45	/Dry Ton

The current year's and the next two years' mineralization of Organic Nitrogen is used in determining its immediate value. In the first three years, only 45.3% of the Organic Nitrogen is plant available, and only that portion is being assigned monetary value in this calculation. The remaining portion, as well as the other tangible benefits of adding organics to soils, is not included.

Total Annual Value of Nutrients in Biosolids Provided to Farmers

● Nitrogen (NH4 and available OrgN as N)	$671,000
● Phosphorous as phosphate (P2O5)	$384,000
● Potassium as potassium oxide (K2O)	$115,000
● Ag Lime as calcium carbonate (CaCO3)	$61,000

Only nutrients for which there is a net-crop need should be included in monetary valuation, on a field-by-field basis. Applications are Nitrogen-based, so the Nitrogen value should be included in its entirety. Liming of fields is typically necessary under normal farming operations, so the Ag Lime value should also be included in its entirety.

Production Methods

- Wastewater Treatment Process:
  The Moccasin Bend WWTP has a treatment capacity of 140 million gallons per day (MGD). The plant operates the following liquid treatment unit processes:
  1. Screening sand grit removal;
  2. Primary settling and scum removal;
  3. High purity oxygen activated sludge biological treatment;
  4. Final clarification;
  5. Chlorine disinfection;
  6. Sodium bisulfite dechlorination; and
  7. CSO/wet-weather treatment with a capacity of 80 MGD includes screenings and grit removal, polymer-aided primary treatment and chlorine disinfection.

- Biosolids Treatment Process:
  The Moccasin Bend WWTP has dewatering capacity of 120 dry tons per day. If solids inventory require, dewatering processes can be ramped up to a capacity of 160 dry tons per day. The plant currently operates the following solids treatment unit processes:
  1. Gravity thickening of primary and waste-activated solids;
  2. Thermophilic/mesophilic anaerobic digestion of primary solids;
  3. Waste-activated solids are blended with digested primary solids;
  4. Chemical conditioning of blended solids with polymer followed by dewatering via two (2) 60 dry ton per day high “G” centrifuges;
  5. Dewatered solids from the centrifuges are lime stabilized with lime kiln dust to produce Class B biosoli
  6. A second dewatering process available consists of chemical conditioning of blended solids with lime slurry and ferric chloride followed by hot water vacuum filter presses capable of processing approximately 43 dry tons per day;
  7. The biosolids produced from these processes are combined and land applied on agricultural sites.

Other Considerations

Environmental and Conserved Natural Resources Value

- 524 tons of Nitrogen were recycled, rather than going to landfill.
- 21,300 mmBTU (million BTU) of natural gas was conserved, since farmers didn't need to purchase manufactured chemical fertilzer.
- That's 20,700,000 cubic feet of natural gas.
- If used to generate power, that natural gas could make 2,050,000 kW-hrs of electricity.
- That could power 137 homes in TN for a year.
- 1,210 tons of CO2 didn't end up in the atmosphere.