

APPENDIX D
Version - FINAL - Part 2 of 2
December 31, 2007

**U.S. and State-by-State
Biosolids Regulation
Quality, Treatment, and
End Use and Disposal Data**

This document is available at www.nebiosolids.org.

U. S. TOTALS

Dry U. S. Tons	Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)
	293,656,842	3,537,413	83
Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
434,164,946	1,751,450	0.017	0.6%

Total Biosolids Used or Disposed in 2004*:	From State Survey	Adjusted Estimate***
	7,171,222	7,180,000

Total Number of TWTDS in 2004**:	From CWNS	From Survey Q24
	16824	8776
Total number of TWTDS sending to Separate Preparers in 2004:		2300
Number of Separate Preparers:		186
Number of operating sludge incinerators^:		90+
Fluidized bed:		28+
Multiple hearth:		42+

^{*} Incinerators were underreported; NACWA data notes 105+ multiple hearth alone.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	4639	3,502,845	49%
Disposal	3166	3,247,666	45%
Other (long-term storage, etc.)	1149	420,712	6%
Total	8776	7,171,222	100.00%

Beneficial Use

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	3999	2,620,146	37%
Forestland	28	26,452	0%
Reclamation	94	96,900	1%
Class A EQ Distribution	449	759,347	11%
Total	4461	3,502,845	49%
Other (long-term storage, etc.)	1149	420,712	6%

Disposal

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	2600	2,023,508	28%
Surface Disposal	54	142,684	2%
Incineration	512	1,081,474	15%
	3166	3,247,666	45%

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	478	1,473,867	22%
Other Class A	12	57,659	1%
Class B	3898	2,273,039	34%
Other (no data, etc.)	5524	2,902,575	43%
Total	9912	6,707,141	100%

Summary of Current Biosolids Treatment Practices

	Reported Estimates of Number of TWTDS Using...	Reported Estimates of Quantity of Biosolids Produced Using...	NOTES:
Aerobic Digestion	2200	85,000	CAUTIONS IN USING
Digestion-anaer./other	1000	1,217,000	THIS DATA: These are minimum estimates from incomplete data from states and other sources. Includes data from ~50% of states regarding numbers of TWTDS (column 1) and ~25% of states regarding quantities of biosolids (column 2).
Lime/Alkaline	900	285,000	
Composting	200	471,000	
Thermal (not incineration)	60	112,000	
Long-term (lagoons, reed beds, etc.)	500	97,000	
Other	20	5,400	
Belt Filter Press	650	415,000	
Plate & Frame Press	50	65,500	
Screw Press	10	3,400	
Centrifuge	150	880,000	
Vacuum Filter	20	4,200	
Drying beds	400	380,000	
Other	40	600	They serve only to provide a rough sense of the relative importance of various technologies.

* The total biosolids "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in each state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

***Totals do not include Puerto Rico and other territories. An estimated U. S. total, with territories included, is 7,210,000 dry U. S. tons.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Montana

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Montana is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion and the solid waste portion of Montana's environmental agency regulate biosolids management, disposal, and end use. The solid waste program regulates septage and composting, while the water/wastewater program regulates permitting and water discharge. Montana utilizes specific NPDES type permits, general NPDES permits, solid waste permits, and general EPA Region 8 permits to regulate end use and disposal and land application sites.

Holder of liability: Data was not provided regarding whether Montana allows land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Montana does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: MTPDES is the state equivalent to NPDES. All MTPDES/NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 0.05

Biosolids regulations updated: MT relies primarily on the Part 503 and the EPA Region 8 general permit.

Management practices: As of Today, Montana's state biosolids regulations are not more restrictive than the federal Part 503 regulations. Montana does not require additional monitoring at Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application. Montana does not require formal nutrient management plans. Montana uses tests of available P and a P index to manage or control the application of phosphorus in biosolids (this is required by an EPA Region 8 general permit).

Additional Management Actions: Montana does not require any additional oversight and certification to occur at biosolids land application sites. In Montana, no biosolids management groups perform any additional oversight and certification voluntarily.

Acres applied: Data not reported.

Reporting and Record-keeping: Montana does not require facilities to report biosolids information and data to the state. The public can access data from EPA Region 8, which compiles data in the EPA Biosolids Data Management System (BDMS).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Montana, there are no legislative or regulatory activities happening or imminent that are likely to impact biosolids management. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law.

TRENDS

The beneficial use of biosolids is increasing in Montana. Composters are selling all they make and are looking for more sources of sewage sludge and other feedstocks.

Most significant current pressures on biosolids recycling: Neighbors.

TESTING AND REPORTING

Montana has no state testing and reporting requirements; biosolids management activities in Montana must follow the testing and reporting requirements of the federal Part 503 rule.

SEPTAGE MANAGEMENT

Septage regulations updated: May 25, 2001.

Number of full-time equivalent staff (FTEs) for septage program: 0.3

Septage haulers based in state (estimated): 142

Septage management: Septage can be land applied if it meets Part 503. POTWs are not required to accept septage; however, 28 do.

Percentage of each management practice:

- Land applied = 75 %
- Hauled to TWTDS = 25 %

Other concerns: Montana considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the septage rules. Montana does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Montana

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	-	-	-
Other metals (boron, silver...)	-	-	-	-	-
Dioxins/furans	-	-	-	-	-
PCBs	-	-	-	-	-
Priority pollutants	-	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	-	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	-	-	-	-	-
Nutrients (NPK)	Yes	Yes	-	-	-
Pathogen reduction (Class A or B)	Yes	Yes	-	-	-
Vector attraction reduction (VAR)	Yes	Yes	-	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?		
		Yes/No	In accordance with Part 503 requirements		Other... please specify	Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	-	-	-	-	-	-	-
Part 503 metals	-	-	-	-	-	-	-
Other metals	-	-	-	-	-	-	-
Dioxins/furans	-	-	-	-	-	-	-
PCBs	-	-	-	-	-	-	-
Priority pollutants	-	-	-	-	-	-	-
Other organic compounds	-	-	-	-	-	-	-
Radioactive isotopes	-	-	-	-	-	-	-
Nutrients (N, P, K)	-	-	-	-	-	-	-
Cumulative Pollutant Loading Rates	-	-	-	-	-	-	-
How biosolids achieve Class A or B	-	-	-	-	-	-	-
How biosolids achieve Vector Attraction	-	-	-	-	-	-	-
Solids stabilization processes used	-	-	-	-	-	-	-
Other biosolids treatments	-	-	-	-	-	-	-
End use/disposal practice	-	-	-	-	-	-	-

Montana

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	926,920	145,552	6	18,315,514	21,854	0.001
						0.0%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24	Adjusted Estimate				
	10,699	11,000				
Total Number of TWTDS in 2004**:	From CWNS	From Survey Q24				
	211	26				
Total number of TWTDS sending to Separate Preparers in 2004:		3				
Number of Separate Preparers:		3				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		no data				
UNITS: Dry Metric Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

16,841 no data

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	13	7,081	66%	
Disposal	5	2,569	24%	
Other	8	1,049	10%	
Total	26	10,699	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	8	3,555	33%	
Rangeland	1	41	0%	
Reclamation	1	2,231	21%	
Class A EQ Distribution	3	1,254	12%	
Total	13	7,081	66%	
Long-term storage	8	1,049	10%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	4	2,551	24%	
Surface Disposal	1	18	0%	
Incineration	0	-	0%	
	5	2,569	24%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	3	1,254	12%
Other Class A	0	-	0%
Class B	10	5,827	54%
Other (no data, etc.)	13	3,618	34%
Total	26	10,699	100%

3 separate preparers that make biosolids compost.

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...
Aerobic Digestion	11	4,648
Digestion-anaer./other	9	6,528
Lime/Alkaline	0	-
Composting	2	2,860
Thermal (not incineration)	0	-
Long-term (lagoons, reed beds, etc.)	0	-
Other	0	-
Belt Filter Press	7	6,020
Plate & Frame Press	0	-
Screw Press	0	-
Centrifuge	2	1,767
Vacuum Filter	0	-
Drying beds	9	804
Other	0	-

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Nebraska

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Nebraska is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion of Nebraska's environmental agency, along with EPA Region 7, regulates biosolids. Nebraska utilizes site permits to regulate end use and disposal. Land application sites are not permitted, but there is a site review or approval required.

Holder of liability: Nebraska does not allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Nebraska does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year, but it is not actually being done.

NPDES equivalent: Nebraska is delegated for the NPDES program. All NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 0.01

Biosolids regulations updated: Nebraska does not have any biosolids regulations; the state relies on the federal Part 503 regulations.

Management practices: Nebraska mostly relies on the federal Part 503 rule, although the state requires some additional monitoring at Class B land application sites (only done at one site), and nitrogen, phosphorous, chlorides, and metals are all used to determine the agronomic loading rate for land application. Nebraska's pathogen and vector retraction reduction requirements and pollutant (heavy metal) limits are not more restrictive than Part 503. Nebraska does not require formal nutrient management plans. Nebraska controls the application of phosphorus (P) in biosolids through including P in agronomic loading rate calculations.

Additional Management Actions: Nebraska does not require any additional oversight or certification to occur at biosolids land application sites, and no biosolids management groups perform any additional oversight or certification voluntarily.

Acres applied in 2004: No data provided.

Reporting and Record-keeping: Only major facilities are required to report biosolids information and data to the state. The public can access these reports by mail or in person from the state agency; they are not compiled electronically.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Nebraska, there is no legislative, regulatory or other activity happening or imminent impacting biosolids beneficial use. No information was provided regarding whether or not local units of government are allowed to adopt ordinances that are more restrictive than state law. The number of towns and counties in Nebraska that have adopted more restrictive biosolids application ordinances is not known, but it is unlikely that any have.

Most significant current pressures on biosolids recycling: No data provided.

SEPTAGE MANAGEMENT - No septage management data was provided.

Nebraska

	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	1,747,704	76,872	23	22,520,874	43,722	0.002
						0.1%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24	Adjusted Estimate				
	33,902	34,000				
Total Number of TWTDS in 2004**:	From CWNS	From Survey Q24				
	469	16				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		0				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		no data				
UNITS:	Dry U.S. Tons					

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	14	33,175	98%	Land application remains a steady practice in Nebraska, and there is plenty of demand from farmers due to rising commercial fertilizer prices.
Disposal	1	227	1%	
Other	1	500	1%	Fremont stored 500 dry U.S. tons in 2004; North Platte has large lagoons that are cleaned out only occasionally and used or disposed of no solids in 2004.
Total	16	33,902	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	13	32,850	97%	Omaha (the state's largest city), Lincoln, Fremont, Kearney, and Grand Island all land apply Class B biosolids.
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	1	325	1%	Bellevue
Total	14	33,175	98%	
Long-term storage	1	500	1%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	1	227	1%	
Surface Disposal	0	-	0%	
Incineration	0	-	0%	
	1	227	1%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	3	948	3%
Other Class A	0	-	0%
Class B	11	32,226	95%
Other (no data, etc.)	2	727	2%
Total	16	33,901	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	no data	no data	
Digestion-anaer./other	no data	no data	
Lime/Alkaline	no data	no data	
Composting	no data	no data	
Thermal (not incineration)	no data	no data	
Long-term (lagoons, reed beds, etc.)	no data	no data	
Other	no data	no data	
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	no data	no data	
Other	no data	no data	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Nevada

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Nevada is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/wastewater portion, along with the solid waste portion of Nevada's environmental agency, regulates biosolids. Wastewater regulates beneficial use, and solid waste regulates landfill disposal. Nevada mostly utilizes groundwater permits to regulate solids lagoons and storage ponds: many wastewater treatment facilities discharge to ponds; these are dredged every 10 years or so, and most goes to landfill. Otherwise, land application is regulated by Part 503 and Nevada has no additional regulations.

Holder of liability: Nevada does allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. Four landowners and/or land applicators hold legal liability for biosolids end use.

More than one Class B biosolids on one site? Nevada does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year. This is being done on 2 sites.

NPDES equivalent: Nevada has no state equivalent to NPDES. Nevada is not delegated for biosolids and pretreatment. All NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 0.2

Biosolids regulations updated: Nevada has few regulations at the state level.

Management practices: Nevada's biosolids regulations are generally not more restrictive than the federal Part 503 rule. However, Nevada requires additional monitoring at Class B land application sites, with annual monitoring of crop yield. Nitrogen is the basis for the agronomic loading rate for land application. Nevada does not require formal nutrient management plans. Nevada does not manage or control the application of phosphorus in biosolids.

Additional Management Actions: Nevada does not require any additional oversight or certification to occur at biosolids land application sites, and the extent of voluntary monitoring and oversight on the part of biosolids management programs is not known.

Acres applied: The number of acres to which biosolids were applied in 2004 is not known. The number of new site permits/approvals that were issued in 2004 is not known, but is likely to have been only a few at most.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency, from some POTW or TWTDS websites, or from the Region 9 EPA office. Nevada does not compile biosolids use and disposal data electronically, although EPA Region 9 does.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Nevada, there are no legislative or regulatory activities happening or imminent that are likely to impact biosolids management. As of today, local units of government are allowed to adopt ordinances that are

more restrictive than state law. One county in Nevada has adopted a more restrictive biosolids application ordinance, but this number is not expected to grow.

TRENDS

The beneficial use of biosolids is not increasing in Nevada because of lack of water and water conservation needs: beneficial use results in more competition for scarce water by encouraging agriculture (agriculture is discouraged, especially in the Las Vegas area). In addition, Nevada has large landfill capacity and low tipping fees.

Most significant current pressures on biosolids recycling:

1. Hauling costs.
2. Public perception.
3. Development of agricultural lands.

SEPTAGE MANAGEMENT

Septage regulations updated: Nevada has no septage regulations.

Number of full-time equivalent staff (FTEs) for septage program: 0.2

Septage haulers based in state (estimated): 30 – 35; only 5% of Nevada's population relies on septic systems.

Septage management: Septage can be land applied if it meets part 503. POTWs are not required to accept septage.

Percentage of each management practice:

- 50% goes to land application (most in Reno/Carson City area). Septage is usually mixed 3 parts septage to 1 part grease waste to meet the land application requirement for grease waste.
- 50% is discharged at TWTDS

Other concerns: Nevada considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste is managed like septage and with septage. FOG can be land applied if properly blended with septage. The amount of grease being land applied will likely become less in the near future, because the Truckee Meadows POTW in Sparks is installing an acid-phase digester to further their generation of biogas that is used to generate electricity; this facility is expected to take in much of the currently-land-applied grease.

Nevada's biosolids management policy:

"NDEP supports biosolids re-use in order to take advantage of this beneficial soil amendment and to keep material with high liquid content out of the State's landfills. Contact the NDEP Bureau of Water Pollution Control to apply for a biosolids reuse permit. Many disposal sites do accept these wastes, but they must be dried or otherwise solidified prior to disposal." *Retrieved February 6, 2007 from <http://ndep.nv.gov/bwm/special.htm>*

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Nevada

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	Yes	-	-
Other metals (boron, silver...)	No	No	Yes	-	-
Dioxins/furans	No	No	Yes	-	-
PCBs	No	No	Yes	-	-
Priority pollutants	No	No	Yes	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	Yes	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	Yes	-	-
Nutrients (NPK)	No	Yes	Yes	-	-
Pathogen reduction (Class A or B)	No	Yes	Yes	-	-
Vector attraction reduction (VAR)	No	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	-	Yes	-	Paper	No	-
Part 503 metals	-	Yes	-	Paper	No	-
Other metals	No	NA	-	-	-	-
Dioxins/furans	No	NA	-	-	-	-
PCBs	No	NA	-	-	-	-
Priority pollutants	No	NA	-	-	-	-
Other organic compounds	No	NA	-	-	-	-
Radioactive isotopes	No	NA	-	-	-	-
Nutrients (N, P, K)	-	Yes	-	Paper	No	-
Cumulative Pollutant Loading Rates	-	Yes	-	Paper	No	-
How biosolids achieve Class A or B	-	Yes	-	Paper	No	-
How biosolids achieve Vector Attraction	-	Yes	-	Paper	No	-
Solids stabilization processes used	-	Yes	-	Paper	No	-
Other biosolids treatments	-	Yes	-	Paper	No	-
End use/disposal practice	-	Yes	-	Paper	No	-

Nevada

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
2,332,898	109,825	21	940,295	2,001	0.060	2.0%
Total Biosolids Generated in 2004*:	From State Survey Q24	Adjusted Estimate				
		56,478	56,500			
Total Number of TWTDS in 2004**:	From CWNS		From Survey Q24			
	57		11			
Total number of TWTDS sending to Separate Preparers in 2004:		2				
Number of Separate Preparers:		1				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		5%				
UNITS:	Dry Metric Tons					

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

28,071 38,500

NOTES: Data in these tables are from EPA Region 9 and individual TWTDS. Nevada's population is centralized: 80% of population lives in Clark County (Las Vegas, Henderson, etc.). The quantities in these tables represent the largest 11 TWTDS.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	4	10,552	19%	
Disposal	7	45,926	81%	
Other	0	-	0%	
Total	11	56,478	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	2	9,614	17%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	2	938	2%	
Total	4	10,552	19%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	7	45,926	81%	
Surface Disposal	0	-	0%	
Incineration	0	-	0%	
	7	45,926	81%	

NOTES:

The Las Vegas area is served by 3 utilities (Clark County=100 MGD, Las Vegas=70 MGD, Henderson=20 MGD) and a total of 6 TWTDS. Together, they produced about 80% of the state's biosolids, all of which was used as landfill daily cover.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	2	938	2%
Other Class A	0	-	0%
Class B	2	25,344	45%
Other (no data, etc.)	7	30,196	53%
Total	11	56,478	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...
Aerobic Digestion	0	-
Digestion-anaer./other	2	>30%
Lime/Alkaline	0	-
Composting	11	<1
Thermal (not incineration)	0	-
Long-term (lagoons, reed beds, etc.)	20	<1
Other	0	-
Belt Filter Press	2	<1
Plate & Frame Press	0	-
Screw Press	1	<1
Centrifuge	2	>30%
Vaccum Filter	0	-
Drying beds	20	<1
Other	0	-

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator and/or regional EPA and the largest individual TWTDS in the state; it is the sum of the "Beneficial Use" and "Disposal" data, below. The "Adjusted Estimate" is calculated from estimates of wastewater flow not accounted for in the "From State Survey Q24" total. The adjusted estimate is considered more accurate and is used only in national totals; for those states for which estimating was necessary, it is rounded to the nearest 1000 tons.

** "Total Number of TWTDS in 2004" shows two totals. The first is the estimate of the total number of individual TWTDS, as reported by the state biosolids coordinator or other state agency source OR is the number reporting flow in the 2004 CWNS. The second total number of TWTDS, "From Survey Q24," is the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below; this total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

New Hampshire

REGULATION AND PERMITTING

Delegated by EPA for biosolids? New Hampshire is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/wastewater portion of New Hampshire's environmental agency regulates biosolids and utilizes New Hampshire Department of Environmental Services (DES) rules, which include issuance of Sludge Quality Certifications (SQC) and Site Permits to regulate end use and disposal. Land application sites are regulated under site-specific permits.

Holder of liability: New Hampshire does allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. Currently 22 land owners hold legal liability for biosolids end use.

More than one Class B biosolids on one site? New Hampshire does allow *Class B* biosolids from more than one TWTDS to be land applied on the same site in the same crop year. This is actually being done at approximately 27 sites.

NPDES equivalent: There is no state equivalent to NPDES. All NPDES or equivalent state permits do not include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 2.5

Biosolids regulations updated: March 1999; minor updates to rules were adopted in early 2007.

Management practices: The management practices of New Hampshire's biosolids regulations are more restrictive than the federal Part 503 rule. These regulations include setback requirements and crop restrictions. New Hampshire's pathogen and/or vector attraction reduction limits are also more restrictive: meeting vector attraction reduction (VAR) by incorporation or injection is not allowed. New Hampshire has more restrictive pollutant (trace metals, etc.) limits. New Hampshire requires additional monitoring at Class B land application sites. Soil monitoring is required at all sites, and groundwater monitoring is required for reclamation at greater than agronomic rates. Nitrogen is the basis for the agronomic loading rate for land application. New Hampshire does require formal nutrient management plans. New Hampshire uses a P index to manage or control the application of phosphorus in biosolids.

Additional Management Actions: New Hampshire does not require certification of land applicators. The NH DES conducts random testing and inspections of land application sites and events every year. Some biosolids management groups take additional actions to control odors and re-test Class A biosolids for pathogens if they have been stored for three weeks or more after treatment.

Acres applied: In 2004, biosolids were applied to 1,517 acres. In 2004, one new site permit/approval was issued.

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with Excel and Access.

Legislative, regulatory, or other activity impacting biosolids use/disposal: Changes are being made to New Hampshire DES biosolids regulations, and there is some interest in the legislature, where several biosolids and septage bills have been introduced each year for several years.

These activities are likely to have minimal effect on beneficial use. Development of farm lands is reducing available land for land application, which has the effect of reducing beneficial use over time. Municipalities are allowed to adopt ordinances that are more restrictive than state law. Over 40 towns in New Hampshire have adopted more restrictive biosolids application ordinances, and the overall the number of more restrictive ordinances is increasing slowly – but this is unlikely to significantly impact ongoing biosolids recycling programs.

TRENDS

The beneficial use of biosolids has decreased somewhat in New Hampshire due to increased development and decreased public acceptance.

Most significant current pressures on biosolids recycling:

1. Decreased public acceptance fomented by activists opposed to beneficial use, as well as negative media coverage.
2. Increased development pressure on farmland.
3. Lack of technical response by EPA to address perceived risks from land application.

SEPTAGE MANAGEMENT

Septage regulations updated: October, 2005.

Number of full-time equivalent staff (FTEs) for septage program: 2.5

Septage haulers based in state (estimated): 150

Septage management: Septage can be land applied if it meets Part 503 and the following additional requirements: New Hampshire septage rules define 2 classes of septage. One meets Part 503 for land application at permitted sites (with increased buffer distances over federal law), and the other is “Exceptional Quality” (EQ) and is determined by testing for metals and volatile & semi-volatile organic chemicals. EQ septage is allowed for general distribution. POTWs are not required to accept septage; however, 46 do.

Percentage of each management practice:

- Land applied = 7%
- Hauled to TWTDS = 76% (including several out of state)
- Disposed of in lagoons = 10% (lagoon disposal is being phased out)
- Sent to other septage-only treatment facilities = 7%

Other concerns: 60% or more of the state’s residents are served by septic systems. 80% of new development in the past decade has been in areas not served by centralized sewer systems, so the percentage of the state population served by septic systems continues to rise. (This data is calculated by comparing the number of housing starts and the number of septic system permits granted by DES.)

FOG is being taken seriously in NH, because “EPA says this is the #1 cause of CSOs.” However, the state has little data on FOG at this time and does not have a proactive program to collect FOG and keep it out of the general wastewater flow. In New Hampshire, the use and disposal of grease trap waste falls under the septage rules.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: New Hampshire

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	-	-	Initially -4 samples 60 days apart Then frequency according to amount generated
Other metals (boron, silver...)	-	Yes	-	4 samples 60 days apart to receive certification and then annually	-
Dioxins/furans	-	Yes	-	*same comment as other metals	-
PCBs	-	Yes	-	*same comment as other metals	-
Priority pollutants	-	Yes	-	*same comment as other metals	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	-	Yes	-	*same comment as other metals (see attached list)	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	-	No	-	-	-
Nutrients (NPK)	-	Yes	-	-	Initially -4 samples 60 days apart then frequency according to amount generated
Pathogen reduction (Class A or B)	-	Yes	Yes	-	-
Vector attraction reduction (VAR)	-	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	-	Annually by the last business of January	Both	-	Please find attached annual legislative report
Part 503 metals	Yes	-	Annually by the last business of January	Both	-	and a sample annual report
Other metals	Yes	-	Annually by the last business of January	Both	-	(Franklin WWTF)
Dioxins/furans	Yes	-	Annually by the last business of January	Both	-	-
PCBs	Yes	-	Annually by the last business of January	Both	-	-
Priority pollutants	Yes	-	Annually by the last business of January	Both	-	-
Other organic compounds	Yes	-	Annually by the last business of January	Both	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	Annually by the last business of January	Both	-	-
Cumulative Pollutant Loading Rates	Yes	-	Annually by the last business of January	Both	-	-
How biosolids achieve Class A or B	-	-	-	-	-	-
How biosolids achieve Vector Attraction	No	-	-	-	-	-
Solids stabilization processes used	No	-	Annually by the last business of January	Both	-	-
Other biosolids treatments	-	-	-	-	-	-
End use/disposal practice	Yes	-	Annually by the last business of January	Both	-	-

New Hampshire

	Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi.)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
	1,299,169	8,968	145	129,388	2,505	0.209	7.0%
Total Biosolids Generated in 2004*:		From State Survey Q24	Adjusted Estimate				
		27,021	27,000				
Total Number of TWTDS in 2004**:		From CWNS	From Survey Q24				
		88	34				
Total number of TWTDS sending to Separate Preparers in 2004:			8				
Number of Separate Preparers:			4				
Number of operating sludge incinerators:			1				
Fluidized bed:			1				
Multiple hearth:			0				
Percent of population served by on-site (e.g. septic systems):			60%				
UNITS:	Dry U. S. Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

20,715 18,000

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	17	18,509	68%	
Disposal	17	8,512	32%	
Other	0	-	0%	
Total	34	27,021	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	5	3,908	14%	
Forestland	0	-	0%	
Reclamation	4	180	1%	
Class A EQ Distribution	8	14,421	53%	
Total	17	18,509	68%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	16	4,032	15%	
Surface Disposal	0	-	0%	
Incineration	1	4,480	17%	
	17	8,512	32%	

NOTES:

Concord land applies Class A and B biosolids, and Nashua land applies Class B biosolids. Land applied biosolids go mostly to agricultural land as fertilizer for grass hay or feed corn. Some is used for reclamation of gravel pits and closed landfills. Much of this is compost produced by Claremont, Dover, Merrimack, Plymouth, etc.

NOTES:

Manchester, the state's largest city, operates the state's only incineration facility.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Class A EQ	8	14,421	54%	
Other Class A	0	-	0%	
Class B	46	3,908	15%	
Other (no data, etc.)	0	8,512	32%	
Total	54	26,841	100%	

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	NOTES:
Aerobic Digestion	0	-	Incomplete data.
Digestion-anaer./other	3	3,298	
Lime/Alkaline	4	5,785	
Composting	5	7,812	
Thermal (not incineration)	0	-	
Long-term (lagoons, reed beds, etc.)	0	-	
Other	0	-	
Belt Filter Press	12	7,850	
Plate & Frame Press	2	930	
Screw Press	0	-	
Centrifuge	0	-	
Vaccum Filter	0	-	
Drying beds	4	-	
Other	0	-	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

New Jersey

REGULATION AND PERMITTING

Delegated by EPA for biosolids? New Jersey is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion, the solid waste program, and the air quality program of New Jersey's environmental agency regulates biosolids. The Bureau of Pretreatment and Residuals in the Division of Water Quality (water/wastewater) oversees land application and general program administration. Solid waste oversees landfill permitting and approvals for landfill daily cover uses. The air quality program oversees permitting of incinerators. New Jersey utilizes specific NPDES type permits, general NPDES type permits, solid waste permits, and air permits to regulate end use and disposal and land application sites.

Holder of liability: New Jersey does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. There are 2 landowners and/or land applicators that hold liability.

More than one Class B biosolids on one site? New Jersey does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year; however, the biosolids must be blended. This is being done at 2 sites.

NPDES equivalent: NJPDES is the state equivalent to NPDES. All NJPDES/NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: a good part of 11.33

Biosolids regulations updated: 1997

Management practices: The management practices of New Jersey's biosolids regulations are more restrictive than the federal Part 503 rule. These regulations include buffers based on site characteristics or as recommended in a site-specific Conservation Plan. New Jersey's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. New Jersey requires additional monitoring at Class B land application sites, with pH testing and Mehlich 3 soil fertility tests for K, Ca, Mg, and P. Nitrogen, lime equivalency, or P-based – whichever is most limiting – are the basis for the agronomic loading rate for land application. New Jersey does require formal nutrient management plans. New Jersey uses a limit based on soil tests for P and is moving to using a P index to manage or control the application of phosphorus in biosolids.

Additional Management Actions: New Jersey requires the following additional oversight and certification to occur at biosolids land application sites:

- Other requirements or actions to control odors at land application sites.

In New Jersey, no biosolids management groups are known to perform additional oversight and certification voluntarily.

Acres applied: In 2004, biosolids were applied to a total of about 92 acres. In 2004, 2 new site permits/approvals were issued.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency or on the state website. The data and

reports are compiled electronically with Excel and Access (New Jersey has its own program, but the data can be downloaded into Excel or Access).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In New Jersey, there are no legislative or regulatory activities happening or imminent that are likely to impact biosolids management. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law. No towns or counties in New Jersey have adopted more restrictive biosolids application ordinances.

TRENDS

The beneficial use of biosolids is not increasing in New Jersey. Two Class B and one Class A operations have shut down due to noncompliance in the last 5 years. In addition, another Class A composting operation has shut down due to cost. No new operations have taken their place; therefore there has been a general decrease in biosolids recycling.

Most significant current pressures on biosolids recycling:

1. Lack of available land and/or development pressures.
2. Biosolids recycling is already at a high level (66%), and that level will be hard to sustain.
3. Statutory and regulatory requirements.

SEPTAGE MANAGEMENT

Septage regulations updated: 1997.

Number of full-time equivalent staff (FTEs) for septage program: some part of 11.33

Septage haulers based in state (estimated): No data reported.

Septage management: Septage can be land applied if it meets Part 503. 26 TWTDS accept septage.

Percentage of each management practice:

- Hauled to TWTDS = 100 %

Other concerns: New Jersey considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the septage rules. Although not specifically mentioned in the rules, FOG is typically managed like septage, although fewer facilities accept it. New Jersey has a proactive program to collect FOG and keep it out of the general wastewater flow. Most sewer ordinances require removal of FOG before discharging wastewater to sewers. A few POTWs will accept FOG, but it has been a problem when too much is sent to one POTW. One POTW operates an incinerator and has been able to work FOG into the process to help lower fuel costs.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: New Jersey

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	For preparer permit	Wastewater flow	Permit issued to preparer requires testing in accordance with 503 plus permit issued to sludge generator requires testing based on flow: ≤ MGD or greater = monthly
Other metals (boron, silver...)	Yes	Yes	-	Wastewater Flow	Beryllium and Chromium based on above flow. Antimony, silver, Thallium and cyanide annual for 1.0 MGD or greater
Dioxins/furans	No	No	-	The Department conducted sampling for dioxins and furans. All treatment works which hold	Rule allows for case-by-case if determined necessary.
PCBs	Yes	Yes	-	The Department conducted sampling for 209 congeners. All treatment works which hold	Arochlors are tested annually for 1.0 MGD or greater. Rule allows for additional PCBs if determined necessary.
Priority pollutants	Yes	Yes	-	-	Annual pp scan is required for 1.0 MGD or greater
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	The Department sampled many treatment works for the presence of NORM. Data currently being reviewed and monitoring likely to be imposed on some.	Case-by-case. Currently none, but rules allow to impose on case-by case.
Nutrients (NPK)	Yes	Yes	For preparer permit	Wastewater flow	Based on wastewater flow above. Test for calcium, TKN, ammonia, nitrate, P & K
Pathogen reduction (Class A or B)	No	Yes	-	-	-
Vector attraction reduction (VAR)	No	Yes	-	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	For preparers	Wastewater flow	Both	Yes	1. Statewide summary 2. County by county summary
Part 503 metals	Yes	For preparers	Wastewater flow	Both	Yes	All data is entered in New Jersey Environmental Management System Data
Other metals	Yes	-	Wastewater flow	Both	Yes	Reports can be run as requested or on-line
Dioxins/furans	Yes	-	Case by case	-	Yes	Data from Department sampling available
PCBs	Yes	-	Wastewater flow for arochlor	Both	Yes	Plus, data from department sampling available
Priority pollutants	Yes	-	Wastewater flow	Both	Yes	Reports can be run as requested or on-line
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	Yes	-	Case by case	-	Yes	Data from Department sampling available
Nutrients (N, P, K)	Yes	For preparers	Wastewater flow	Both	Yes	Reports can be run as requested or on-line
Cumulative Pollutant Loading Rates	Yes	For preparers	-	-	-	Currently no preparer is over ceiling that land applied
How biosolids achieve Class A or B	Yes	For preparers	-	Both	Yes	Reports can be run as requested or on-line
How biosolids achieve Vector Attraction	Yes	For preparers,	-	Both	Yes	Reports can be run as requested or on-line
Solids stabilization processes used	Yes	-	-	Both	-	Information is submitted as part of application, as much information as possible gets entered in NJEMS. If it is in NJEMS a report can be written
Other biosolids treatments	Yes	-	-	Both	-	Information is submitted as part of application, as much information as possible gets entered in NJEMS. If it is in NJEMS a report can be written
End use/disposal practice	Yes	-	-	Both	-	See attached report

New Jersey

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	8,685,166	7,417	1,171	547,668	8,342	0.433
						14.4%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24 236,960	Adjusted Estimate 237,000	Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004) 250,460	Dry tons, reported to BioCycle Survey (Goldstein, 2000) 232,000		
Total Number of TWTDS in 2004**:	From CWNS 156	From Survey Q24 391				
Total number of TWTDS sending to Separate Preparers in 2004:		327				
Number of Separate Preparers:		8				
Number of operating sludge incinerators:		9				
Fluidized bed:		5				
Multiple hearth:		4				
Percent of population served by on-site (e.g. septic systems):		no data				
	UNITS: Dry Metric Tons					

Biosolids Use and Disposal Summary (2004 data)				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	83	36,635	15%	
Disposal	299	199,981	84%	
Other	9	344	0%	
Total	391	236,960	100.00%	These are solids stored in reed beds.
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	17	5,952	3%	
Forestland	1	72	0%	
Reclamation	8	4,102	2%	
Class A EQ Distribution	57	26,510	11%	
Total	83	36,635	15%	
Long-term storage	9	344	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	142	133,151	56%	
Surface Disposal	0	-	0%	
Incineration	157	66,830	28%	
	299	199,981	84%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	57	26,510	11%
Other Class A	0	-	0%
Class B	18	6,024	3%
Other (no data, etc.)	272	204,426	86%
Total	347	236,960	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES:
Aerobic Digestion	36	179		1 documents production of 179 dmt of Class B biosolids.
Digestion-anaer./other	16	1,592		3 document production of 1,592 dmt of Class B biosolids
Lime/Alkaline	2	1,668		
Composting	5	15,481		
Thermal (not incineration)	1	9,999		
Long-term (lagoons, reed beds, etc.)	9	344		Reed beds.
Other	16	no data		Unspecified forms of digestion.
Belt Filter Press	36+	no data		There are likely more than the 36 reported.
Plate & Frame Press	1	35,987		
Screw Press	0	no data		
Centrifuge	5+	no data		There are likely more than the 5 reported.
Vacuum Filter	0	no data		
Drying beds	3	no data		
Other	0	no data		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

New Mexico

REGULATION AND PERMITTING

Delegated by EPA for biosolids? New Mexico is in the process of applying for delegation (although the process is on hold).

State agency regulating biosolids: The water/ wastewater portion of New Mexico's environmental agency, along with USEPA, regulates biosolids. General biosolids/sludge use and disposal requirements are written into each individual NPDES permit.

Holder of liability: New Mexico does not allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? New Mexico does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: Because it does not have primacy, New Mexico does not have a state equivalent to NPDES. All NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 0

Biosolids regulations updated: There are no separate biosolids/sludge management regulations in New Mexico.

Management practices: As of today, New Mexico's biosolids regulations (including management practices, pathogen and vector attraction reduction requirements, and pollutant limits) are not more restrictive than the federal Part 503 rule. New Mexico does not require additional monitoring of Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application. New Mexico does not require formal nutrient management plans. New Mexico does not manage or control the application of phosphorus in biosolids.

Additional Management Actions: New Mexico does not require any additional oversight or certification to occur at biosolids land application sites. It is not known if any biosolids management groups perform any additional oversight or certification voluntarily.

Acres applied: Information on the acreage to which biosolids are applied is kept at each TWTDS that applied biosolids; this information is not compiled by the state. In 2004, no new site permits/approvals were issued.

Reporting and Record-keeping: Only major facilities are required to report biosolids information and data (to EPA). The public can access these reports by mail or in person from the state agency or from the EPA regional office. The state agency does not compile this information in electronic format; it keeps paper copies on file.

Legislative, regulatory, or other activity impacting biosolids use/disposal: New Mexico is pursuing delegation for the biosolids program; the impact of this is hard to predict, but will likely be minimal. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law. No towns or counties in New Mexico have adopted more restrictive biosolids application ordinances.

TRENDS

The beneficial use of biosolids is not increasing in New Mexico, because landfilling is less expensive.

Most significant current pressures on biosolids recycling:

1. Cost.
2. Convincing the public to use biosolids (public education).
3. High groundwater levels.

SEPTAGE MANAGEMENT

Septage regulations updated: New Mexico has no formal regulatory structure for septage, but septage is included in the groundwater discharge rules. The regulations pertaining to septage permitting were written in 1977, and, although they haven't changed since, the way they permit and the way they handle violations have improved greatly over the years.

Number of full-time equivalent staff (FTEs) for septage program: 0

Septage haulers based in state (estimated): 144

Septage management: About 38% of the population of New Mexico is served by septic systems. Septage can be land applied if it meets the federal Part 503 rules. New Mexico requires permits in order to land apply, and each permit lists a specific Part 503 choice for treatment that bests meets the land and climate of the site. POTWs are not required to accept septage; however, about 25 do accept it.

Percentage of each management practice (estimated):

- Land applied = 40 %
- Hauled to TWTDS = 40 %
- Lagoons = 20

Other concerns: New Mexico considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls within the groundwater rules and/or NPDES permitting. New Mexico does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: New Mexico

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	-	-
Other metals (boron, silver...)	No	-	-	-	-
Dioxins/furans	No	-	-	-	-
PCBs	Yes	Yes	Yes	40 CFR 258	-
Priority pollutants	No	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	-	-	-	-
Nutrients (NPK)	Yes	Yes	-	Ground Water regs	-
Pathogen reduction (Class A or B)	Yes	Yes	Yes	-	-
Vector attraction reduction (VAR)	Yes	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Paper	No	-
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	No	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	Yes	Yes	-	Paper	No	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	Ground water regs	Paper	No	-
Cumulative Pollutant Loading Rates	No	-	-	-	-	-
How biosolids achieve Class A or B	Yes	Yes	-	Paper	No	-
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	No	-
Solids stabilization processes used	No	-	-	-	-	-
Other biosolids treatments	No	-	-	-	-	-
End use/disposal practice	Yes	Yes	-	Paper	No	-

New Mexico

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
1,903,006	121,355	16	2,575,107	10,855	0.028	0.9%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	72,935	73,000				
Total Number of TWTDS in 2004**:		From CWNS	From Survey Q24	NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinators, with one significant change (surface disposal amount reduced). Most data corroborated by most USEPA Region 6 data.		
		66	26	Additional information from Albuquerque wastewater reclamation facility. There are also 5 small Native American/Tribal TWTDS, numbers from which are not included in these tables. Note that the total includes the final Albuquerque compost, which is a much larger mass than the wastewater solids which went into making it. The Albuquerque estimate is that about 24% of the compost, on average over the year, is biosolids feedstock, meaning that the amount of solids going into the compost was ~9,000 dmt in 2004. This makes the total New Mexico solids generation more on the order of ~44,000 dmt.		
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		3				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		38%				
UNITS: Dry Metric Tons						

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	10	65,880	90%	
Disposal	14	6,874	9%	
Other	2	182	0%	
Total	26	72,935	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	8	28,304	39%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	2	37,576	52%	
Total	10	65,880	90%	Albuquerque compost (37,000+ dry metric tons), but also one heat-dried product.
Long-term storage	2	182	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
MSW landfill (incl dly cvr)	8	4,447	6%	
Surface Disposal	6	2,427	3%	
Incineration	0	-	0%	
	14	6,874	9%	Some sources reported an additional ~37,000 dry metric tons of surface-disposed biosolids, but this was not included in these tables, as no likely source of this large mass was reported.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	0	37,576	52%
Other Class A	9	20,023	27%
Class B	16	8,281	11%
Other (no data, etc.)	0	7,056	10%
Total	25	72,936	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES: Data estimated by state biosolids coordinators.
Aerobic Digestion	11	2,536		
Digestion-anaer./other	4	5,624		
Lime/Alkaline	1	1,653		
Composting	7	28,358		
Thermal (not incineration)	0	-		
Long-term (lagoons, reed beds, etc.)	5	39,463		
Other	0	-		
Belt Filter Press	6	5,233		
Plate & Frame Press	1	175		
Screw Press	0	-		
Centrifuge	2	66,247		
Vacuum Filter	1	108		
Drying beds	12	6,104		
Other	0	-		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

New York

REGULATION AND PERMITTING

Delegated by EPA for biosolids? New York is planning to seek delegation from USEPA sometime in the future when resources allow.

State agency regulating biosolids: The solid waste portion of New York's environmental agency regulates biosolids and utilizes solid waste permits to regulate end use and disposal and land application sites.

Holder of liability: New York does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. There are 5 land applicators or land owners that hold liability.

More than one Class B biosolids on one site? New York does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year. This is actually being done on 4 sites.

NPDES equivalent: SPDES is the state equivalent to NPDES. All SPDES/NPDES permits include general requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 4.5

Biosolids regulations updated: March 2003.

Management practices: The management practices of New York's biosolids regulations are more restrictive than the federal Part 503 rule. These rules include setback requirements and higher testing frequency. New York's pathogen and/or vector attraction reduction limits are not more restrictive. New York has more restrictive pollutant (trace metals, etc.) limits. New York requires additional monitoring at Class B land application sites; annual soil tests for pH, As, Cd, Cr, Cu, Pb, Hg, Ni, Se, and Zn. Nitrogen is the basis for the agronomic loading rate for land application. New York does not require formal nutrient management plans. New York requires testing for total P to manage or control the application of phosphorus in biosolids.

Additional Management Actions: New York requires the following oversight and certification to occur at biosolids land application sites:

- Other requirements or actions to control odors at land application sites.
- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing.

In New York, some biosolids managers perform the following additional actions voluntarily:

- Independent inspectors or monitors at land application sites;
- Certification of biosolids land applicators who manage or implement biosolids land application programs;
- Numerical odor emissions limits at land application sites; and
- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing.

Acres applied: In 2004, Class B biosolids were applied to a total of about 4,000 acres. In 2004, there were no new site permits/approvals issued.

Reporting and Record-keeping: Sludge-only processing facilities are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency, which compiles them electronically in Excel and PDF formats.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In New York, there are no legislative or regulatory activities happening or imminent that will impact biosolids. As of today, local units of government are allowed to adopt ordinances that are more restrictive than state law, unless protected by Right-to-Farm rules. The total number of towns and counties in New York that have adopted more restrictive biosolids application ordinances is unknown. It is not known if the number of more restrictive ordinances is increasing or decreasing.

TRENDS

The beneficial use of biosolids is not currently increasing in New York. Landfilling becomes more attractive to some municipalities due to low tipping fees.

Most significant current pressures on biosolids recycling:

1. Landfill cost is relatively low.
2. Increased scrutiny by EPA.

According to a NY DEC summary of biosolids management practices in 2004, "Since...1998, the percentage of beneficial use has slightly decreased from 51% to 48%. The quantity of biosolids incinerated has also dropped from 31% to 25%. As a result, a significant increase in the quantity of biosolids landfilled has occurred since 1998, rising from 17% to 26%. The number of landfills that accept biosolids has increased...."

SEPTAGE MANAGEMENT

Septage regulations updated: March 2003.

Number of full-time equivalent staff (FTEs) for septage program: 1.0

Septage haulers based in state (estimated): 615

Septage management: Septage can be land applied if it meets Part 503 and the following additional requirements: soil tests for N,P, and K, and all septage must be limed (pH of 12 for 30 minutes). POTWs are not required to accept septage. However, 89 TWTDS accept septage.

Percentage of each management practice:

Percentages are not known, but a rough estimate is that 50% of septage is applied to land and 50% is disposed of at wastewater treatment facilities.

Other concerns: New York does not consider fats, oils, and grease (FOG) to be a significant issue. The use and disposal of grease trap waste falls under the solid waste rules. New York does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

A complete NY Department of Environmental Conservation report on biosolids use and disposal in New York in 2004 is available at www.dec.state.ny.us/website/dshm/redrecy/bioreprt.pdf.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: New York

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	-	See attachments, tables 1-9	-
Other metals (boron, silver...)	No	Yes	-	See attachments, tables 1-9	-
Dioxins/furans	No	No	-	See attachments, tables 1-9	-
PCBs	No	No	-	See attachments, tables 1-9	-
Priority pollutants	No	Yes	-	See attachments, tables 1-9	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	See attachments, tables 1-9	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	See attachments, tables 1-9	-
Nutrients (NPK)	No	Yes	-	See attachments, tables 1-9	-
Pathogen reduction (Class A or B)	No	Yes	-	See attachments, tables 1-9	-
Vector attraction reduction (VAR)	No	Yes	-	See attachments, tables 1-9	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING: Only for POTW's that land apply or use beneficial use options	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Both	Yes	See attached draft of 2004 report "biosolids management practices in NYS"
Part 503 metals	Yes	Yes	-	Paper	-	
Other metals	Yes	-	Cr	Paper	-	
Dioxins/furans	No	-	-	-	-	
PCBs	No	-	-	-	-	
Priority pollutants	Yes	-	-	Paper	-	
Other organic compounds	No	-	-	-	-	
Radioactiv e isotopes	No	-	-	-	-	
Nutrients (N, P, K)	Yes	-	-	Paper	-	
Cumulative Pollutant Loading Rates	Yes	-	-	Paper	-	
How biosolids achieve Class A or B	Yes	Yes	-	Paper	-	
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	-	
Solids stabilization processes used	Yes	Yes	-	Paper	-	
Other biosolids treatments	Yes	Yes	-	Paper	-	
End use/disposal practice	Yes	-	-	Paper	-	

New York

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
19,280,727	47,213	408	4,841,367	33,351	0.073	2.4%
Total Biosolids Generated in 2004*:	From State Survey Q24	Adjusted Estimate				
	353,260	353,300				
Total Number of TWTDS in 2004**:	From CWNS	From Survey Q24				
	588	584				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		32				
Number of operating sludge incinerators:		15				
Fluidized bed:		8				
Multiple hearth:		7				
Percent of population served by on-site (e.g. septic systems):		20%				
UNITS:	Dry U.S. Tons					

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

569,813 360,000

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator. Some TWTDS use more than one form of use or disposal; in this count for New York, a TWTDS is assigned to one category or another based on what happens to the majority of its sewage sludge.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	147	169,198	48%	
Disposal	373	182,005	52%	
Other	64	2,057	1%	
Total	584	353,260	100.00%	This 1% is sewage sludge in long-term storage or for which there is lack of data.

Beneficial Use

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	72	65,464	19%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	75	103,734	29%	
Total	147	169,198	48%	About 77% of biosolids beneficially used were shipped out of state. New York also had 7,600 dry U.S. tons of heat-dried pellets and biosolids compost come into the state.
Long-term storage	64	2,057	1%	

Disposal

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
MSW landfill (incl dly cvr)	292	92,103	26%	
Surface Disposal	1	1,382	0%	
Incineration	80	88,520	25%	
	373	182,005	52%	All ash from incineration of biosolids was landfilled.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	88	135,071	38%
Other Class A	0	-	0%
Class B	59	34,127	10%
Other (no data, etc.)	437	184,062	52%
Total	584	353,260	100%

NOTES:

There were 27 composting facilities and 25 land application facilities in 2004, both down from 30 in 1998.

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	215	36,131	
Digestion-anaer./other	145	216,254	
Lime/Alkaline	22	40,489	
Composting	60	41,208	
Thermal (not incineration)	15	62,526	
Long-term (lagoons, reed beds, etc.)	28	1,595	
Other	2	3,457	
Belt Filter Press	146	123,332	
Plate & Frame Press	23	10,362	
Screw Press	0	-	
Centrifuge	25	134,081	
Vaccum Filter	5	3,863	
Drying beds	112	5,937	
Other	0	-	

NOTES:

This table includes the number of treatment systems. Some TWTDS use two different treatment systems in sequences, such as aerobic digestion followed by composting. Thus, the total count of TWTDS in this table is larger than the total number of TWTDS in the state. Some quantities are also double counted.

These use wet air oxidation.

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

North Carolina

REGULATION AND PERMITTING

Delegated by EPA for biosolids? North Carolina is planning to seek delegation from USEPA sometime in the future, when resources allow.

State agency regulating biosolids: The water/ wastewater portion of North Carolina's environmental agency regulates biosolids and utilizes individual state permits to regulate end use and disposal and land application sites.

Holder of liability: North Carolina does allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? North Carolina does allow *Class B* biosolids from more than one TWTDS to be land applied on the same site in the same crop year. This is actually being done; it started recently. Haulers have to list the totals for each field and how much biosolids comes from each source; for example, small package plants combine to land apply on one field. One new project is going to use a tank and mix small amounts together before land application.

NPDES equivalent: NPDES permits do not always include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: approximately 4

Biosolids regulations updated: 1993.

Management practices: The management practices of North Carolina's biosolids regulations have been more restrictive than the federal Part 503 rule. The setback requirements are more extensive and more restrictive than 503 requirements. However, North Carolina's pathogen and vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. North Carolina requires additional monitoring at Class B land application sites, with annual soil tests required at all sites and groundwater monitoring at dedicated sites. Nitrogen is the basis for the agronomic loading rate for land application. North Carolina does not require formal nutrient management plans. North Carolina does not currently manage or control the application of phosphorus in biosolids.

In September, 2006, new regulations (NCA 15-2T) were passed that govern biosolids/residuals land application; these regulations are essentially the same as Part 503, but they still include setbacks, buffer zones, management practices, monitoring and reporting. Currently, industrial wastewater solids are included in the tracking of biosolids in North Carolina. The new rules require that even industries (animal processors, enzyme manufacturing) will have to meet vector and pathogen requirements, just like municipal biosolids. There are 5 or 6 surface disposal units for biosolids in the state – the environmental agency is working to phase out their use. Most of the biosolids land applied is liquid (Class A and B).

Additional Management Actions: North Carolina requires the following oversight and certification to occur at biosolids land application sites:

- Certification of biosolids land applicators who manage or implement land application programs.

It was not reported if biosolids management groups in North Carolina perform any additional monitoring, inspection, certification, or other actions voluntarily.

Acres applied: The number of acres to which biosolids were applied in North Carolina in 2004 was not reported. In 2004, 27 new site permits/approvals were issued.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with BIMS (Basinwide Information Management System), which includes NPDES, wetlands, and other information for each river basin; biosolids information is just being added in, starting in 2004.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In North Carolina, development of, or changes to, state biosolids regulations is happening or is imminent and will likely have no significant affect on beneficial use. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law.

TRENDS

No significant changes to biosolids management in North Carolina has occurred over the past few years, and none are expected in the near future.

Most significant current pressures on biosolids recycling:

1. Public health concerns, including a need for more documentation that the Class B pathogen and vector requirements are protective.

SEPTAGE MANAGEMENT

Septage regulations updated: 1995.

Number of full-time equivalent staff (FTEs) for septage program: 5

Septage haulers based in state (estimated): 500. Permits from the Division of Waste Management are required for hauling septage.

Septage management: Septage can be land applied if it meets part 503; a state permit is required. Training is being provided by the state. POTWs are not required to accept septage, but most larger municipal TWTDS do (often only from within their county).

Percentage of each management practice:

- Land applied = 60% (90% of grease trap waste), with Class B lime treatment.
- Hauled to TWTDS = 40% (this involves a cost for tipping fees; some counties have banned land application of septage).
- A few facilities compost septage, and a couple dewater, add lime, and then land apply the treated solids.

Other concerns: North Carolina considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the septage rules. North Carolina does not have a proactive program to collect FOG and keep it out of the general wastewater flow. Individual towns and counties adopt their own proactive programs, but there is not one on the state level. County health departments inspect restaurants and grease traps – and are pretty rigorous – one inspection per quarter is required of restaurants.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: North Carolina

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	Yes	-	-
Other metals (boron, silver...)	No	No	-	-	-
Dioxins/furans	No	No	-	-	-
PCBs	No	No	-	-	-
Priority pollutants	No	No	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	-	-
Nutrients (NPK)	No	Yes	Yes	-	-
Pathogen reduction (Class A or B)	No	Yes	Yes	-	-
Vector attraction reduction (VAR)	No	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Paper	No	-
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	-	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	-	Paper	-	-
Cumulative Pollutant Loading Rates	Yes	-	-	Paper	-	-
How biosolids achieve Class A or B	Yes	-	-	Paper	-	-
How biosolids achieve Vector Attraction	Yes	-	-	Paper	-	-
Solids stabilization processes used	Yes	-	-	Paper	-	-
Other biosolids treatments	-	-	-	-	-	-
End use/disposal practice	Yes	-	-	Paper	-	-

North Carolina

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
8,540,468	48,710	175	5,472,128	45,268	0.022	0.7%
Total Biosolids Used or Disposed in 2004*:						
From State Survey Q24		Adjusted Estimate			Dry tons, reported to BioCycle Survey (Goldstein, 2000)	
		122,384			132,964	
Total Number of TWTDS in 2004**:		From CWNS	From Survey Q24		no data	
		457	55			
Total number of TWTDS sending to Separate Preparers in 2004:				0	NOTES: Data in these tables are from EPA Region 4. They are a compilation of data from various TWTDS over several years (2002-2006), with no individual TWTDS counted twice. Additional data were obtained directly from individual TWTDS. Data compiled here represents approximately 55% of the total wastewater flow in the state, according to the EPA CWNS flow data for 2004.	
Number of Separate Preparers:				1		
Number of operating sludge incinerators:				4		
Fluidized bed:				ND		
Multiple hearth:				ND		
Percent of population served by on-site (e.g. septic systems):				no data		
UNITS: Dry Metric Tons						

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	34	60,787	50%	
Disposal	21	61,597	50%	
Other	0	-	0%	
Total	55	122,384	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	33	60,567	49%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	1	220	0%	
Total	34	60,787	50%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	17	29,952	24%	
Surface Disposal	0	-	0%	
Incineration	4	31,645	26%	
	21	61,597	50%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Class A EQ	7	21,114	17%	
Other Class A	0	-	0%	
Class B	23	47,604	39%	
Other (no data, etc.)	26	53,667	44%	
Total	56	122,385	100%	In the "Other" line are 7 TWTDS and 5,049 dmt that were beneficially used, but their Class A or B quality was not reported.

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES:
Aerobic Digestion	some	no data		Incomplete data.
Digestion-anaer./other	many	no data		There are more anaerobic systems than aerobic ones in NC.
Lime/Alkaline	many	no data		A lot of smaller systems, and a few larger ones, use this method.
Composting	several	no data		1 private & 1 county preparer take from several TWTDS; other TWTDS compost own
Thermal (not incineration)	a few	no data		3 or 4; make Class A to sell or give away
Long-term (lagoons, reed beds, etc.)		no data		
Other		no data		
Belt Filter Press	most	no data		
Plate & Frame Press	a few	no data		The number of TWTDS using this technology is diminishing.
Screw Press		no data		
Centrifuge	several	no data		Used by several larger TWTDS.
Vacuum Filter	no longer many	no data		
Drying beds	a few	no data		Used by a few small TWTDS.
Other		no data		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

North Dakota

REGULATION AND PERMITTING

Delegated by EPA for biosolids? North Dakota is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion of North Dakota's environmental agency regulates biosolids. The state's permitting system, if any, was not reported.

Holder of liability: No response provided.

More than one Class B biosolids on one site? No response provided.

NPDES equivalent: No response provided.

Number of full-time equivalent staff (FTEs) for biosolids program: No response provided.

Biosolids regulations updated: No response provided.

Management practices: The management practices of North Dakota's biosolids regulations are not more restrictive than the federal Part 503 rule. North Dakota does not require additional monitoring at Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application in North Dakota. North Dakota does requires formal nutrient management plans. North Dakota does not manage or control the application of phosphorus in biosolids.

Additional Management Actions: North Dakota does not require any additional oversight or certification to occur at biosolids land application sites. In North Dakota, no biosolids management groups perform any additional oversight or certification voluntarily.

Acres applied: No response provided.

Reporting and Record-keeping: EPA Region 8 compiles North Dakota information reported to EPA using the EPA Biosolids Data Management System (BDMS).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In North Dakota, there are no legislative or regulatory activities happening or imminent that are likely to impact biosolids management.

TRENDS

No response was provided regarding trends in North Dakota.

Most significant current pressures on biosolids recycling: No response provided.

TESTING AND REPORTING No response provided.

SEPTAGE MANAGEMENT

Septage regulations updated: 1979

Number of full-time equivalent staff (FTEs) for septage program: 0.2

Septage haulers based in state (estimated): 106

Septage management: Septage can be land applied if it meets Part 503 and additional state requirements. POTWs are not required to accept septage; the number of TWTDS that do accept septage was not reported.

Percentage of each management practice (estimated):

- Land applied = 80 %
- Hauled to TWTDS = 10 %
- Disposed of in Lagoons = 10 %

Other concerns: North Dakota considers fats, oils, and grease (FOG) to be a significant issue. North Dakota does not regulate the use and disposal of grease trap waste. North Dakota does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

North Dakota

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
636,308	68,975	9	26,506,477	28,502	0.000	0.0%
Total Biosolids Used or Disposed in 2005*:						
	From State Survey Q24	Adjusted Estimate				
	7,797	8,000		11,435	Dry tons, reported to BioCycle Survey (Goldstein, 2000)	4.810
Total Number of TWTDS in 2004**:						
	From CWNS	From Survey Q24				
	284	3				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		0				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		no data				
UNITS: Dry Metric Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

11,435

4.810

NOTES: Data in these tables are from EPA Region 8, and they include the largest (major) TWTDS in North Dakota. Data used is from 2005, which is considered representative of 2004.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	2	1,400	18%	
Disposal	1	6,397	82%	
Other	0	-	0%	
Total	3	7,797	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	2	1,400	18%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	0	-	0%	
Total	2	1,400	18%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	1	6,397	82%	
Surface Disposal	0	-	0%	
Incineration	0	-	0%	
	1	6,397	82%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	0	-	0%
Other Class A	0	-	0%
Class B	3	7,797	100%
Other (no data, etc.)	0	-	0%
Total	3	7,797	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	0	-	
Digestion-anaer./other	3	7,797	
Lime/Alkaline	0	-	
Composting	0	-	
Thermal (not incineration)	0	-	
Long-term (lagoons, reed beds, etc.)	1	-	
Other	0	-	
Belt Filter Press	1	6,397	
Plate & Frame Press	0	-	
Screw Press	0	-	
Centrifuge	0	-	
Vacuum Filter	0	-	
Drying beds	2	6,397	
Other	0	-	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

Ohio

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Ohio is delegated for the land application, landfill, and surface disposal portions of Part 503.

State agency regulating biosolids: The water/ wastewater portion of Ohio's environmental agency regulates biosolids and utilizes specific NPDES type permits to regulate end use and disposal and land application sites.

Holder of liability: Ohio does not allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Ohio does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: Ohio is delegated for the NPDES program. All NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 2

Biosolids regulations updated: April 2002.

Management practices: The management practices of Ohio's biosolids regulations are more restrictive than the federal Part 503 rule. These rules include additional and increased setbacks, Source Water Assessment and Protection (SWAP) area restrictions, and Class B signage requirements. Ohio's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. Ohio requires additional monitoring at Class B land application sites, with soil, pH, and phosphorus monitored within past two years of land application. Nitrogen is the basis for the agronomic loading rate for land application. Ohio does not require formal nutrient management plans. Ohio uses test of available P in soil, along with a P index, to manage or control the application of phosphorus in biosolids.

Additional Management Actions: Ohio requires the following oversight and certification to occur at biosolids land application sites:

- Other requirements or actions to control odors at land application sites.
- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing.

In Ohio, no biosolids management groups are known to perform any additional oversight or certification voluntarily.

Acres applied in 2004: Data not provided.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with Access and SWIMware (Surface Water Information Management System).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Ohio, use/disposal is being negatively impacted by development of, or changes to, state biosolids regulations and changes to state statute(s) regarding biosolids management. These activities are likely to have the effect of reducing beneficial use. An increase in landfill fees in Ohio will likely have an effect on beneficial reuse of biosolids. As of today, local units of government are allowed to

adopt ordinances that are more restrictive than state law. Although ordinances are allowed, this has not been an issue, and Ohio EPA does not believe there are any.

TRENDS

The beneficial use of biosolids is not increasing in Ohio. Urban sprawl (loss of farmland) is the main reason why beneficial use is not increasing. It results in large hauling fees to reach less developed areas, more nuisance complaints, and tighter restrictions for frozen and snow covered ground land application.

Most significant current pressures on biosolids recycling:

1. Many POTWs find that it is cheaper to landfill than to land apply their sludge.
2. Neighbors who have issues with the odor or perceived threats to water.
3. Large factory farms have given nutrient application a “bad name” in Ohio.

SEPTAGE MANAGEMENT

Septage regulations updated: January, 2007.

Number of full-time equivalent staff (FTEs) for septage program: .01

Septage haulers based in state (estimated): 500

Septage management: The Ohio health department estimates that 20% -25% of the population relies on septic systems. Septage can be land applied if it meets Part 503. POTWs are not required to accept septage and the number that do was not reported.

Percentage of each management practice:

- Land applied = 40 %
- Hauled to TWTDS = 60 %

Other concerns: Although Ohio has the authority to regulate the disposal of grease trap waste, there are no specific rules pertaining to grease trap waste. According to Ohio EPA, Ohio does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Ohio

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	X		In accordance with testing schedule required by Part 503 based on tons of solids produced per calendar year.
Other metals (boron, silver...)	No	No			
Dioxins/furans	No	Yes			Annually for POTWs > 1 MGD and once per NPDES permit term for POTWs 0.1 to 1 MGD.
PCBs	No	Yes			Annually for POTWs > 1 MGD and once per NPDES permit term for POTWs 0.1 to 1 MGD.
Priority pollutants	No	No			
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No			
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No			
Nutrients (NPK)	No	Yes			
Pathogen reduction (Class A or B)	No	Yes			
Vector attraction reduction (VAR)	No	Yes			

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Annual report	Also NPDES permit at each permit specific frequency	Both		
Part 503 metals	Yes	Annual report	Also NPDES permit at each permit specific frequency	Both		
Other metals	No					
Dioxins/furans	Yes			Both		Annually for POTWs > 1 MGD and once per NPDES permit term for POTWs 0.1 to 1 MGD
PCBs	Yes			Both		Annually for POTWs > 1 MGD and once per NPDES permit term for POTWs 0.1 to 1 MGD
Priority pollutants	No					
Other organic compounds	No					
Radioactive isotopes	No					
Nutrients (N, P, K)	Yes	N only		Both		
Cumulative Pollutant Loading Rates	Yes	Annual report		Paper		
How biosolids achieve Class A or B	Yes	Annual report		Both		
How biosolids achieve Vector Attraction	Yes	Annual report		Both		
Solids stabilization processes used	No					
Other biosolids treatments	No					
End use/disposal practice	Yes					

Ohio

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	11,450,143	40,948	280	11,424,499	69,620	0.028
						0.9%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24 323,695	Adjusted Estimate 325,000	Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004) 381,802	Dry tons, reported to BioCycle Survey (Goldstein, 2000) 400,000		
Total Number of TWTDS in 2004**:	From CWNS 780	From Survey Q24 216				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		no data				
Number of operating sludge incinerators:		no data				
Fluidized bed:		no data				
Multiple hearth:		no data				
Percent of population served by on-site (e.g. septic systems):		20 - 25%				
UNITS:	Dry Metric Tons					

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

381,802

400,000

Total Number of TWTDS in 2004**:

From CWNS
780

From Survey Q24
216

Total number of TWTDS sending to Separate Preparers in 2004:

NOTES: Data in these tables are from USEPA Region 5, National Association of Clean Water Agencies Financial Survey data, and the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator.

Number of Separate Preparers:

Number of operating sludge incinerators:

 Fluidized bed:

 Multiple hearth:

Percent of population served by on-site (e.g. septic systems):

UNITS: **Dry Metric Tons**

]

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	118	158,056	49%	
Disposal	71	138,292	43%	
Other	27	27,347	8%	
Total	216	323,695	100.00%	Mostly biosolids reported to USEPA Region 5 for which no information on method of use or disposal was provided.
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	116	120,480	37%	Includes some Class A and much Class B biosolids.
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	2	37,576	12%	Includes Columbus compost.
Total	118	158,056	49%	
Other	27	27,347	8%	See note next to "Other" above.
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	63	56,941	18%	
Surface Disposal	6	2,803	1%	
Incineration	2	78,548	24%	
	71	138,292	43%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	2	37,576	12%
Other Class A	no data	20,023	6%
Class B	116	100,457	31%
Other (no data, etc.)	90	165,639	51%
Total	208	323,695	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	NOTES: Incomplete data
Aerobic Digestion	11	2,536	
Digestion-anaer./other	4	5,624	
Lime/Alkaline	1	1,653	
Composting	7	28,358	
Thermal (not incineration)	0	-	
Long-term (lagoons, reed beds, etc.)	5	39,463	
Other	0	-	
Belt Filter Press	6	5,233	
Plate & Frame Press	1	175	
Screw Press	0	-	
Centrifuge	2	66,247	
Vacuum Filter	1	108	
Drying beds	12	6,104	
Other	0	-	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Oklahoma

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Oklahoma is delegated for the full rule 40 CFR Part 503 (as of November 19, 1996).

State agency regulating biosolids: The water/ wastewater portion of Oklahoma's environmental agency, the Oklahoma Department of Environmental Quality (DEQ), regulates biosolids and utilizes specific NPDES type permits to regulate biosolids end use, land fill disposal, and land application.

Holder of liability: Oklahoma does not allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Oklahoma does not generally allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year. However, a land applicator who owns or operates more than one source facility or surface impoundment may utilize the same land application site for the application of biosolids from the multiple facilities or impoundments with prior written approval from DEQ.

NPDES equivalent: OPDES is the state equivalent to NPDES. All OPDES/NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 1

Biosolids regulations updated: June 2005.

Management practices: The management practices of Oklahoma's biosolids regulations are more restrictive than the federal Part 503 rule. There is no surface disposal allowed in Oklahoma (see Title 252. Department Of Environmental Quality, Chapter 606. Oklahoma Pollutant Discharge Elimination System Standards Subchapter 9). Oklahoma's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. Oklahoma does not require additional monitoring at Class B land application sites. Nitrogen and phosphorus are the basis for the agronomic loading rate for land application. Oklahoma does not require formal nutrient management plans, however, annual biosolids land application rates cannot exceed nitrogen and phosphorus rates for the crop grown and cannot be applied in rates that result in phytotoxicity.

Additional Management Actions: Oklahoma does not require additional oversight and certification to occur at biosolids land application sites. There was no report of biosolids managers performing any additional oversight or certification voluntarily.

Acres applied in 2004: No data provided. In 2004, 5 new site permits/approvals were issued.

Reporting and Record-keeping: Only major facilities are required to report biosolids information and data (sludge DMR). All facilities must keep biosolids records. Biosolids permits and records are stored at DEQ in the central records section and are open to the public. An electronic biosolids database was being developed in 2006 to store biosolids information.

Legislative, regulatory, or other activity impacting biosolids use/disposal: No new restrictions at this time.

TRENDS

Beneficial use has not changed much in the past few years.

Most significant current pressures on biosolids recycling:

1. Phosphorus levels.
2. Odor.
3. Scenic river watersheds.
4. More facilities are producing Class A compost.

SEPTAGE MANAGEMENT

Septage regulations updated: 2001.

Number of full-time equivalent staff (FTEs) for septage program: 1

Septage haulers based in state (estimated): 147

Septage management: Septage can be land applied if it meets Part 503 requirements - domestic septage must maintain a pH of 12 for 30 minutes. POTWs are not required to accept septage, but many do.

Percentage of each management practice:

- Land applied = 5%
- Hauled to TWTDS = 95%

Other concerns: The use and disposal of grease trap waste falls under the industrial waste rules, which serve to help keep FOG out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Oklahoma

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	-	-
Other metals (boron, silver...)	No	-	-	-	-
Dioxins/furans	No	-	-	-	-
PCBs	No	Yes	-	Every year.	-
Priority pollutants	No	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	-	-	-	TCLP performed every 5 years
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	-	-	-	-
Nutrients (NPK)	Yes	Yes	-	-	-
Pathogen reduction (Class A or B)	Yes	Yes	-	-	-
Vector attraction reduction (VAR)	Yes	Yes	-	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Electronic	No	-
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	No	-	-	Paper	No	-
Dioxins/furans	-	-	-	-	No	-
PCBs	Yes	-	-	Paper	No	-
Priority pollutants	No	-	-	-	No	-
Other organic compounds	No	-	-	Paper	No	-
Radioactive isotopes	No	-	-	Paper	No	-
Nutrients (N, P, K)	-	-	-	-	No	-
Cumulative Pollutant Loading Rates	Yes	Yes	-	Paper	No	-
How biosolids achieve Class A or B	Yes	Yes	-	Paper	No	-
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	No	-
Solids stabilization processes used	Yes	Yes	-	Paper	No	-
Other biosolids treatments	Yes	Yes	-	Paper	No	-
End use/disposal practice	Yes	Yes	-	Paper	No	-

Oklahoma

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	3,523,546	68,667	51	14,843,357	61,779	0.004
						0.1%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24	Adjusted Estimate				
	52,753	53,000				
Total Number of TWTDS in 2004**:	From CWNS	From Survey Q24				
	493	59				
Total number of TWTDS sending to Separate Preparers in 2004:		no data				
Number of Separate Preparers:		no data				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		30%				
UNITS: Dry Metric Tons						

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	35	40,043	76%	
Disposal	24	12,710	24%	
Other	0	-	0%	
Total	59	52,753	100.00%	

Beneficial Use

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	33	36,282	69%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	2	3,761	7%	
Total	35	40,043	76%	Both are Class A compost operations.
Long-term storage	0	-	0%	

Disposal

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	24	12,710	24%
Surface Disposal	0	-	0%
Incineration	0	-	0%
	24	12,710	24%

NOTES: All biosolids use and disposal data in these tables was provided by EPA Region 6. This is for major facilities only, and only for those that reported to EPA Region 6 in 2004. These account for 77% of flow (compared to CWNS data for 2004) and 53% of the state population.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	2	3,761	7%
Other Class A	0	-	0%
Class B	33	36,282	69%
Other (no data, etc.)	24	12,710	24%
Total	59	52,753	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES:
Aerobic Digestion	no data	no data		
Digestion-anaer./other	no data	no data		
Lime/Alkaline	no data	no data		
Composting	2	-		Class A compost operations.
Thermal (not incineration)	no data	no data		
Long-term (lagoons, reed beds, etc.)	no data	no data		
Other	no data	no data		
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	no data	no data		
Other	no data	no data		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Oregon

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Oregon is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion of Oregon's environmental agency regulates biosolids and utilizes specific NPDES and state Water Pollution Control Facility permits issued to TWTDS to regulate end use and disposal, as well as site specific authorization letters to regulate land application sites.

Holder of liability: Oregon does allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use; however, there are no cases at present time.

More than one Class B biosolids on one site? Oregon does not allow *Class B* biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: Oregon is delegated for NPDES. All permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 2

Biosolids regulations updated: July 1995.

Management practices: Oregon's state biosolids regulations are somewhat more restrictive than Part 503, because of somewhat more restrictive management practices. However, pathogen and vector attraction reduction requirements and pollutant limits are not more restrictive than Part 503. Oregon requires additional monitoring at Class B land application sites, with soil tests at land application sites, such as for carryover NO₃-N, and for groundwater on a case-by-case basis (depending on the depth to groundwater). Nitrogen is the basis for the agronomic loading rate for land application. Oregon does not require formal nutrient management plans. Oregon does not manage or control the application of phosphorus in biosolids.

Additional Management Actions: Oregon does not require any additional oversight actions; however, there is a recommendation (in policy) that Class A biosolids be tested for presence of pathogens if three weeks or more have elapsed since processing; some biosolids management programs voluntarily do this.

Acres applied in 2004: Data not provided.

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data. The public can access these reports in person from the state agency. The data and reports are not compiled electronically.

Legislative, regulatory, or other activity impacting biosolids use/disposal: Urban sprawl and some public concern about biosolids are occurring in Oregon. These activities have no significant affect on beneficial use. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law.

TRENDS

The beneficial use of biosolids is not increasing in Oregon. Oregon has, for many years, implemented a viable land application program. Production of biosolids may be slightly increasing, but overall beneficial use has not changed in the last few years.

Most significant current pressures on biosolids recycling:

1. Urban Sprawl – availability, near cities, of land for land application.
2. Concerns with PPCP's, emerging pollutants, etc.
3. Perceived health risks with land application.

SEPTAGE MANAGEMENT

Septage regulations updated: July 1995.

Number of full-time equivalent staff (FTEs) for septage program: 0.5

Septage haulers based in state (estimated): 157

Septage management: Septage can be land applied, but must be screened and alkaline stabilized. POTWs are not required to accept septage. The number of TWTDS accepting septage is 54.

Percentage of each management practice: Data on management practices are required to be reported, but it is not easy to summarize, as data is not available electronically.

Other concerns: Oregon considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the septage rules. Oregon has a proactive program to collect FOG and keep it out of the general wastewater flow. There are educational efforts through the Oregon Association of Clean Water Agencies.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Oregon

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	-	-
Other metals (boron, silver...)	Yes	Yes	-	-	-
Dioxins/furans	No	-	-	-	-
PCBs	No	-	-	-	-
Priority pollutants	No	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	-	-	-	-
Nutrients (NPK)	Yes	Yes	-	Same as other mon. reqs. for 503	-
Pathogen reduction (Class A or B)	Yes	Yes	Yes	-	-
Vector attraction reduction (VAR)	Yes	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Paper	No	-
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	Yes	Yes	-	Paper	No	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	Same as rep.reqs. for 503	Paper	No	-
Cumulative Pollutant Loading Rates	-	-	-	-	-	-
How biosolids achieve Class A or B	Yes	Yes	-	Paper	No	-
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	No	-
Solids stabilization processes used	-	-	-	-	-	-
Other biosolids treatments	-	-	-	-	-	-
End use/disposal practice	Yes	-	Permit reqs by rule	Paper	No	-

Oregon

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
3,591,363	95,996	37	5,417,387	30,305	0.011	0.4%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	60,677	61,000		80,759	Dry tons, reported to BioCycle Survey (Goldstein, 2000)	50,000
Total Number of TWTDS in 2004**:						
	From CWNS	From Survey Q24				
	213	42				
Total number of TWTDS sending to Separate Preparers in 2004:						
		0				
Number of Separate Preparers:						
		0				
Number of operating sludge incinerators:						
		0				
Fluidized bed:						
		0				
Multiple hearth:						
		0				
Percent of population served by on-site (e.g. septic systems):						
		29%				
UNITS: Dry U.S. Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

80,759 50,000

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator. There are 200+ small TWTDS in Oregon that produce minimal biosolids and may not remove any from lagoons or other storage for many years.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	38	57,103	94%	
Disposal	4	3,574	6%	
Other	0	-	0%	
Total	42	60,677	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	35	55,000	91%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	3	2,103	3%	
Total	38	57,103	94%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	4	3,574	6%	
Surface Disposal	0	-	0%	
Incineration	0	-	0%	
	4	3,574	6%	

NOTES:

Likely more than 35 TWTDS in Oregon land applied biosolids to agricultural lands in 2004. The data in this table, from a 2005 Oregon Association of Clean Water Agencies survey, included 36 TWTDS and accounted for 87% of the estimated total ~60,000 dry U.S. tons of biosolids generated in the state. The three Class A biosolids products were produced by Grants Pass, McMinnville, and Newburg.

NOTES:

Dallas and Florence biosolids were landfilled; Medford and Klamath Falls biosolids were used as daily cover.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	3	2,103	3%
Other Class A	0	-	0%
Class B	35	55,000	91%
Other (no data, etc.)	0	3,574	6%
Total	38	60,677	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	NOTES:
Aerobic Digestion	1	698	McMinnville has an ATAD process.
Digestion-anaer./other	0	-	
Lime/Alkaline	0	-	
Composting	2	1,405	Grants Pass and Newburg
Thermal (not incineration)	0	-	
Long-term (lagoons, reed beds, etc.)	no data	-	
Other	no data	-	
Belt Filter Press	no data	approximately 21,590	The 2005 ACWA survey found that 43,180 dry U.S. tons of biosolids were dewatered by belt filter press or centrifuge.
Plate & Frame Press	no data	-	
Screw Press	no data	-	
Centrifuge	no data	approximately 21,590	
Vaccum Filter	no data	-	
Drying beds	no data	7,064	
Other	no data	-	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

Pennsylvania

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Pennsylvania is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion of Pennsylvania's environmental agency permits and oversees the biosolids treatment, final product quality, and land application of biosolids. The solid waste program permits biosolids processing activities that occur outside the wastewater treatment plant. The biosolids regulations are written under the solid waste program. Land application is permitted under a general permit issued separate from NPDES permits. In most cases, no site permit is issued. Biosolids land application sites are "registered" under the facility that utilizes them.

Holder of liability: Pennsylvania does not allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Pennsylvania does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year. This is actually being done, but the number of sites on which it happens was not reported.

NPDES equivalent: Pennsylvania is delegated for NPDES. All permits do not include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 8

Biosolids regulations updated: January 1997.

Management practices: The management practices of Pennsylvania's biosolids regulations are more restrictive than the federal Part 503 rule. These rules include: soil analyses for regulated pollutants and pH; farm conservation plan or erosion and sedimentation control plan; setback requirements for surface water, homes, public and private wells, depth to groundwater, and property lines; and slope restrictions. Pennsylvania's pathogen and/or vector attraction reduction limits are not more restrictive than the federal requirements. Pennsylvania has more restrictive pollutant (trace metals, etc.) limits. Pennsylvania does not require additional monitoring at Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application. Pennsylvania does not require formal nutrient management plans. Pennsylvania does not manage or control the application of phosphorus in biosolids, although use of a P index is recommended.

Additional Management Actions: Pennsylvania requires the following oversight and certification to occur at biosolids land application sites:

- Certification of biosolids land applicators who manage or implement land application programs. Pennsylvania requires all land applicators take the biosolids 101 training course.
- Other requirements or actions to control odors at land application sites. General Permits contain language that allows DEP to take action should a facility have persistent and documented public nuisance problems.
- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing. There is no regulation, but it is often required as part of the facility's sampling plan.

In Pennsylvania some biosolids management groups perform the following oversight and certification voluntarily:

- Independent inspections or monitoring at land application sites.
- Certification of biosolids land applicators who manage or implement land application programs.
- Other requirements or actions to control odors at land application sites (land applicators or facilities try and address odor problems if they arise).
- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing.

Acres applied in 2004: Data not provided.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are not compiled electronically.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Pennsylvania, there are no legislative or regulatory activities happening or imminent that are likely to impact biosolids management. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law. Though many municipalities adopt ordinances, they cannot be more restrictive than state law; the state solid waste management act preempts local regulation. However, the number of more restrictive ordinances in Pennsylvania is increasing slowly. At least one town has had its overly restrictive ordinance overturned by a court challenge. There is ongoing controversy about this in some parts of the state.

TRENDS

The beneficial use of biosolids is not increasing in Pennsylvania. Tonnages being reported to EPA Region 3 for land application have been slowly declining over the past seven years. The pressures noted below are the likely cause. However, the number of facilities permitted in PA for beneficial use has not changed significantly.

Most significant current pressures on biosolids recycling:

1. Odor.
2. Public health concerns.
3. Lack of current research on new chemicals entering biosolids and their potential health effects.
4. Desire to increase local involvement / local regulation

SEPTAGE MANAGEMENT

Septage regulations updated: January, 1997.

Number of full-time equivalent staff (FTEs) for septage program: ~2 (regional biosolids coordinators also deal with the septage program)

Septage haulers based in state (estimated): 537 registered, although there are more that are unregistered, even though the state requires registration

Septage management: Septage can be land applied if it meets Part 503 and the following additional requirement: all septage must be treated prior to land application. The typical treatment is lime stabilization (30 minutes at pH 12). POTWs are not required to accept septage;

however, at least 19 TWTDS do (10 in southwest region and 9 in south-central region; the other four regions of the state did not report).

Percentage of each management practice:

- Land applied: in north-central region: 5,572,668 gallons; in southwest region: 1,773,560 gallons; in south-central region: 17.8 million gallons
- Hauled to TWTDS, disposed of in lagoons, sent to other septage-only treatment facility, and composted – data is not compiled and available

Other concerns: Pennsylvania considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the residual waste rules.

PA Biosolids Management Practices Compared to the Federal Part 503 Biosolids Rule

The following requirements are for biosolids that **do not** meet the PA Exceptional Quality Biosolids Standards (Class A pathogen reduction, high quality Table 3 metals, and VAR treatment option).

Pennsylvania Requirements	Federal Requirements
Background soil analyses for regulated pollutants and pH	No requirement
Implemented farm conservation plan or E&S control plan	No requirement
<i>Biosolids cannot be land applied within:</i>	
100 feet (30.5 meters) of a perennial stream	33 feet (10 meters) from waters of US
33 feet (10 meters) of an intermittent stream	33 feet (10 meters) from waters of the US
100 (30.5 meters) feet from edge of sinkhole	No requirement
300 feet (91 meters) of an occupied dwelling	No requirement
300 feet (91 meters) of a water source	No requirement
100 (30.5 meters) feet of an exceptional value wetland	33 (10 meters) feet
11 inches (28 centimeters) of a seasonal high water table	No requirement
3.3 feet (1 meter) of the regional groundwater table	No requirement
<i>Biosolids may not be applied on:</i>	
Agricultural land with slopes greater than 25%	No requirement
Land reclamation sites with slopes greater than 35%	No requirement
Sites where the soil pH is less than 6.0 unless soil pH is adjusted to 6.0 using biosolids or other amendment.	No requirement

<i>Notification Requirements</i>	
Notify all adjacent landowners 30 days prior to 1 st time site is used for biosolids	No requirement
Notify DEP and County Conservation District 30 day prior to 1 st time site is used for biosolids	No requirement
Signed landowner consent form	No requirement

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Pennsylvania

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	And/or State regulation, permit condition or sampling plan	-
Other metals (boron, silver...)	No	No	-	-	-
Dioxins/furans	No	No	-	-	-
PCBs	Yes	Yes	Yes	And/or state regulation, permit condition or sampling plan	-
Priority pollutants	No	No	-	Voluntary can use priority pollutants for hazardous waste determination in lieu of TCLP	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	-	-
Nutrients (NPK)	No	Yes	-	Sampling plan, normally on same frequency as 503	-
Pathogen reduction (Class A or B)	No	Yes	Yes	Written into facility's sampling plan, may sample more frequently	-
Vector attraction reduction (VAR)	No	Yes	Yes	Written into facility's sampling plan, may sample more frequently	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	-		Annual report	Paper	No
Part 503 metals	Yes	-		Annual report	Paper	No
Other metals	No	-		-	-	-
Dioxins/furans	No	-		-	-	-
PCBs	Yes	-		Annual report	Paper	-
Priority pollutants	No	-		-	-	-
Other organic compounds	No	-		-	-	-
Radioactive isotopes	No	-		-	-	-
Nutrients (N, P, K)	Yes	-		Annual report	Paper	No
Cumulative Pollutant Loading Rates	Yes	-		Annual report	Paper	No
How biosolids achieve Class A or B	Yes	-		Annual report	Paper	No
How biosolids achieve Vector Attraction	Yes	-		Annual report	Paper	No
Solids stabilization processes used	?	-		-	-	-
Other biosolids treatments	No	-		-	-	-
End use/disposal practice	Yes	-		Annual report	Paper	No

Pennsylvania

	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	12,394,471	44,816	277	5,120,685	52,365	0.059
						2.0%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24 304,000	Adjusted Estimate 304,000			Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004) 329,549	Dry tons, reported to BioCycle Survey (Goldstein, 2000) 307,000
Total Number of TWTDS in 2004**:	From CWNS 856	From Survey Q24 640				
Total number of TWTDS sending to Separate Preparers in 2004:			no data			
Number of Separate Preparers:			no data			
Number of operating sludge incinerators:			8			
Fluidized bed:			no data			
Multiple hearth:			no data			
Percent of population served by on-site (e.g. septic systems):			no data			
	UNITS:	Dry U.S. Tons				

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)
329,549

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

307,000

NOTES: Data in these tables are from Elliott et al. (2005, and personal communications) and the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator. Elliott et al. directly contacted the largest 55 TWTDS (which represent ~74% of total wastewater flow in the state), as well as estimating from CWNS data. EPA Region 3, which tracks major facilities (> 1 MGD), totaled 275,155 dry U.S. tons in 2004. Its calculations for the volumes and percentages of various methods of use and disposal corroborate the Elliott et al. data presented here. An estimated 30% of <1 MGD facilities transport solids to another TWTDS for handling & disposal, according to Elliott et al.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	159	116,736	38%	
Disposal	481	187,264	62%	
Other	0	-	0%	
Total	640	304,000	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	134	106,736	35%	
Forestland	0	-	0%	
Reclamation	15	7,000	2%	
Class A EQ Distribution	10	3,000	1%	
Total	159	116,736	38%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	473	141,056	46%	
Surface Disposal	0	-	0%	
Incineration	8	46,208	15%	
	481	187,264	62%	

NOTES:

Most beneficially used Class A & B biosolids go to agricultural and reclamation uses.

NOTES:

Incinerators are: Pittsburgh, Erie, Chester, Wyoming Valley, Upper Moreland, Tyrone, Norristown, Hatfield. EPA Region 3 data indicate there are at least 12 TWTDS that incinerate biosolids.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Class A EQ	16	25,000	8%	According to Elliott (personal communications), about 1/3 of facilities producing Class A biosolids do so by each of the following methods: composting, advanced lime treatment, and heat drying. In addition, there is one vermicompost operation (the only one in the U. S.).
Other Class A	0	-	0%	
Class B	143	91,736	30%	
Other (no data, etc.)	481	187,264	62%	
Total	640	304,000	100%	

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	NOTES:
Aerobic Digestion	57	8,736	Data in this table are for only 3 of 6 regions (north-central, south-central, southwest), but include the most populated regions in the state.
Digestion-anaer./other	11	4,904	
Lime/Alkaline	28	23,672	
Composting	4	2,039	
Thermal (not incineration)	4	6,037	
Long-term (lagoons, reed beds, etc.)	1	61	
Other	2	-	
Belt Filter Press	36	28,310	
Plate & Frame Press	2	849	
Screw Press	0	-	
Centrifuge	8	9,587	
Vacuum Filter	0	-	
Drying beds	4	12	
Other	1	-	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Rhode Island

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Rhode Island is not planning to seek delegation from the USEPA for part 503.

State agency regulating biosolids: The water/ wastewater portion of Rhode Island's environmental agency regulates biosolids and uses specific NPDES type permits to regulate biosolids use and disposal. Class B biosolids are not currently applied to land in Rhode Island, but to do so would require a site permit. There are two facilities that make Class A biosolids for general use; all others send their solids to incinerators or landfills in and out of state.

Holder of liability: Rhode Island does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Class B land application is not occurring in Rhode Island at this time.

NPDES equivalent: RIPDES. Not all RIPDES/NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 0.5

Biosolids regulations updated: April 1997.

Management practices: The management practices of Rhode Island's biosolids regulations are more restrictive than the federal Part 503 rule. Rhode Island's pathogen and/or vector attraction reduction limits are not more restrictive than Part 503. Rhode Island's pollutant (trace metals, etc.) limits are more restrictive: the state high quality limit for copper is 840 (compared to EPA's 1500) mg/kg and the state has a standard and high quality limit of 75 mg./kg for molybdenum. Rhode Island would not require additional monitoring at Class B land application sites, if Class B land application was occurring. Nitrogen is the basis for the agronomic loading rate for land application. Rhode Island does require formal nutrient management plans. Rhode Island does not specifically manage or control the application of phosphorus in biosolids (although nutrient management includes addressing P).

Additional Management Actions: Rhode Island requires the following oversight and certification to occur at biosolids land application sites: Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing.

Acres applied: Class B land application is not occurring in Rhode Island and there were no site permits issued in 2004; the uses of Class A products are not tracked.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. Because little biosolids are treated by any method other than incineration, data is not comprehensively compiled electronically.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Rhode Island, there are no legislative or regulatory activities imminent that would affect biosolids management trends. There has been no issue of local units of government adopting ordinances that are more restrictive than state law, and it is assumed that none have done so.

TRENDS

The beneficial use of biosolids is not increasing in Rhode Island. There are currently no new Class A EQ processing facilities planned.

Most significant current pressures on biosolids recycling:

1. Availability of regional incineration facilities, which allows for easy, traditional disposal.
2. Public perception of beneficial uses of biosolids.
3. Improper use of EQ biosolids by the public.

SEPTAGE MANAGEMENT

Septage regulations updated: Rhode Island does not have septage regulations. The Department of Environmental Management's Office of Waste Management (solid waste) regulates the licensing of septage haulers under its hazardous waste regulations.

Number of full-time equivalent staff (FTEs) for septage program: 0

Septage haulers based in state (estimated): approximately 60

Septage management: Septage cannot be land applied in Rhode Island. POTWs are not required to accept septage; however, 14 TWTDS do.

Percentage of each management practice: 100% is hauled to TWTDS

Other concerns: Rhode Island considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the solid/hazardous waste rules. Rhode Island does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

Rhode Island

	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	1,079,916	1,044	1,034	23,506	688	1.170
Total Biosolids Used or Disposed in 2004*:						
From State Survey Q24	Adjusted Estimate					
27,433	27,500					
Total Number of TWTDS in 2004**:	From CWNS 20	From Survey Q24 22				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		0				
Number of operating sludge incinerators:		2				
Fluidized bed:		1				
Multiple hearth:		1				
Percent of population served by on-site (e.g. septic systems):	UNITS: Dry Metric Tons					

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

26,904 28,000

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	2	2,001	7%
Disposal	20	25,432	93%
Other	0	-	0%
Total	22	27,433	100.00%
Beneficial Use			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	0	-	0%
Forestland	0	-	0%
Reclamation	0	-	0%
Class A EQ Distribution	2	2,001	7%
Total	2	2,001	7%
Long-term storage	0	-	0%
Disposal			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	4	1,016	4%
Surface Disposal	0	-	0%
Incineration	16	24,416	89%
	20	25,432	93%

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	2	2,001	7%
Other Class A	0	-	0%
Class B	0	-	0%
Other (no data, etc.)	20	25,432	93%
Total	22	27,433	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	0	-	
Digestion-anaer./other	0	-	
Lime/Alkaline	4	781	
Composting	2	2,001	
Thermal (not incineration)	0	-	
Long-term (lagoons, reed beds, etc.)	0	-	
Other	0	-	
Belt Filter Press	6	10,920	
Plate & Frame Press	0	-	
Screw Press	0	-	
Centrifuge	3	10,073	
Vacuum Filter	0	-	
Drying beds	0	-	
Other	0	-	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

South Carolina

REGULATION AND PERMITTING

Delegated by EPA for biosolids? South Carolina is planning to seek delegation from USEPA sometime in the future when resources allow.

State agency regulating biosolids: The water/ wastewater portion of South Carolina's environmental agency regulates biosolids and utilizes a sludge supplement to a NPDES permit to regulate end use and disposal and land application sites.

Holder of liability: South Carolina does not allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? South Carolina does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: South Carolina is delegated for NPDES. All NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 1

Biosolids regulations updated: December 2003.

Management practices: The management practices of South Carolina's biosolids regulations are more restrictive than the federal Part 503 rule. These rules include soil sampling requirements, odor control requirements, and buffer zone requirements. South Carolina's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. South Carolina requires additional monitoring at Class B land application sites, with soil tests required for nitrates, ammonia, pH, phosphorus, potassium, calcium, and magnesium. Nitrogen is the basis for the agronomic loading rate for land application. South Carolina does not require formal nutrient management plans. South Carolina does not manage or control the application of phosphorus in biosolids.

Additional Management Actions: South Carolina requires the following oversight and certification to occur at biosolids land application sites:

- Other requirements or actions to control odors at land application sites.

In South Carolina, it is not known if biosolids management groups perform any oversight and certification voluntarily.

Acres applied in 2004: Data not available.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. South Carolina does not compile their data electronically.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In South Carolina, development of, or changes to, state biosolids statutes is happening or is imminent, but will likely have no significant affect on beneficial use. An increase in public concern regarding biosolids will likely reduce beneficial use. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law.

TRENDS

The beneficial use of biosolids is increasing in South Carolina, because farmers consider biosolids as free fertilizer.

Most significant current pressures on biosolids recycling:

1. Negative reaction from uniformed general public (re. biosolids land application in general).
2. Negative reaction from uniformed general public (re biosolids land application in SC from sources outside of the state).
3. Odor concerns during land application.

SEPTAGE MANAGEMENT

Septage regulations updated: December 2003

Number of full-time equivalent staff (FTEs) for septage program: 0.1

Septage haulers based in state (estimated): 240

Septage management: Septage can be land applied if it meets Part 503. POTWs are not required to accept septage, but most will accept it from with their surrounding areas.

Percentage of each management practice:

- Land applied = 10 %
- Hauled to TWTDS = 90 %

Other concerns: South Carolina considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the solid waste rules. South Carolina has a proactive program to collect FOG and keep it out of the general wastewater flow. South Carolina requires that FOG be disposed of at landfills.

ADDITIONAL RESOURCES

<http://www.scdhec.gov/environment/water/sludgepage.htm>

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: South Carolina

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	-	-
Other metals (boron, silver...)	-	-	-	-	-
Dioxins/furans	-	-	-	-	-
PCBs	Yes	Yes	Yes	-	-
Priority pollutants	-	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	-	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	-	-	-	-	-
Nutrients (NPK)	Yes	Yes	Yes	-	-
Pathogen reduction (Class A or B)	Yes	Yes	Yes	-	-
Vector attraction reduction (VAR)	Yes	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Paper	No	-
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	-	-	-	-	-	-
Dioxins/furans	-	-	-	-	-	-
PCBs	Yes	Yes	-	Paper	No	-
Priority pollutants	-	-	-	-	-	-
Other organic compounds	Yes	Yes	-	Paper	No	-
Radioactive isotopes	-	-	-	-	-	-
Nutrients (N, P, K)	Yes	Yes	-	Paper	No	-
Cumulative Pollutant Loading Rates	Yes	Yes	-	Paper	No	-
How biosolids achieve Class A or B	Yes	Yes	-	Paper	No	-
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	No	-
Solids stabilization processes used	-	-	-	-	-	-
Other biosolids treatments	Yes	Yes	-	Paper	No	-
End use/disposal practice	Yes	Yes	-	Paper	No	-

South Carolina

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	4,197,892	30,109	139	2,270,084	19,450	0.022
						0.7%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24 37,364	Adjusted Estimate 49,000				
Total Number of TWTDS in 2004**:	From CWNS 173	From Survey Q24 32				
Total number of TWTDS sending to Separate Preparers in 2004:		no data				
Number of Separate Preparers:		6				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		no data				
	UNITS: Dry Metric Tons					

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

95,176 no data

NOTES: Data in these tables are from USEPA Region 4 and is incomplete. They are from a compilation of years (2002-2006), with no facility counted more than once, and include data from all of the state's largest TWTDS. The data compiled accounts for ~46% of centralized wastewater flow in the state. The Adjusted Estimate is calculated by extrapolating upward to account for ~70% of flow.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	15	14,063	38%
Disposal	17	23,301	62%
Other	0	-	0%
Total	32	37,364	100.00%
Beneficial Use			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	14	14,035	38%
Forestland	1	28	0%
Reclamation	0	-	0%
Class A EQ Distribution	0	-	0%
Total	15	14,063	38%
Long-term storage	0	-	0%
Disposal			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	15	20,419	55%
Surface Disposal	1	4	0%
Incineration	1	2,878	8%
	17	23,301	62%

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Class A EQ	2	2,813	8%	Data collected shows 8 TWTDS that send 7,153 dry metric tons to beneficial uses, but it is unclear if they are class A or B, so they are listed here in the row "Other."
Other Class A	0	-	0%	
Class B	5	4,096	11%	
Other (no data, etc.)	25	30,454	82%	
Total	32	37,363	100%	

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		
Aerobic Digestion	no data	no data		
Digestion-anaer./other	no data	no data		
Lime/Alkaline	no data	no data		
Composting	no data	no data		
Thermal (not incineration)	no data	no data		
Long-term (lagoons, reed beds, etc.)	no data	no data		
Other	no data	no data		
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	no data	no data		
Other	no data	no data		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

South Dakota

REGULATION AND PERMITTING

Delegated by EPA for biosolids? South Dakota is delegated for the full Rule 40 CFR Part 503. State agency regulating biosolids: The water/ wastewater portion of South Dakota's Department of Environment and Natural Resources regulates biosolids and utilizes specific NPDES type permits to regulate end use and disposal and land application sites.

Holder of liability: South Dakota does not allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? South Dakota does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent South Dakota is delegated to implement the NPDES program. All Surface Water Discharge permits issued by the state contain a paragraph addressing biosolids use or disposal, which includes a statement that prohibits the removal or disposal of biosolids without prior state approval. The state issues individual Biosolids Management permits to all facilities that routinely produce and dispose of biosolids.

Number of full-time equivalent staff (FTEs) for biosolids program: 0.5

Biosolids regulations updated: October 2001.

Management practices: South Dakota's biosolids regulations are somewhat more restrictive than the federal Part 503 rule, because of a few more restrictive management practices. However, South Dakota's requirements for pathogen and vector attraction reduction and its limits on pollutants are not more restrictive. South Dakota requires additional monitoring at Class B land application sites. There is deep soil sampling required if the site is over a shallow aquifer. There is also additional plant testing and groundwater monitoring at old surface disposal sites.

Nitrogen and phosphorus are the basis for the agronomic loading rate for land application. South Dakota does not require formal nutrient management plans. South Dakota manages or controls the application of phosphorus (P) in biosolids with a permit requirement that prohibits land application if the amount of P is over a certain limit.

Additional Management Actions: SD requires all facilities that generate and land apply biosolids to be covered under a permit. All permittees perform routine self-monitoring at biosolids land application sites and during land application; this includes maintaining an inspection notebook detailing land application activities. There are no known additional management and oversight activities performed voluntarily by those managing biosolids.

Acres to which biosolids were applied in 2004 is not known. South Dakota currently only permits the POTWs, not land application sites (however, POTWs must maintain biosolids management plans, including tracking acreage to verify biosolids are applied at the agronomic rate – but this information is not regularly reported to the state).

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with the EPA Biosolids Data Management System (BDMS).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In South Dakota, there are no legislative or regulatory activities happening or imminent impacting biosolids. South Dakota has not had an issue of local units of government adopting ordinances that are more restrictive than state law.

TRENDS

The beneficial use of biosolids is increasing in South Dakota. The state received delegation of the biosolids program in 2002. Before then, when EPA was implementing the program in the state, they had approximately 18 facilities permitted. There are several minor facilities in the state that generated and land applied biosolids that were not permitted by EPA and were not counted. In addition, the city of Milbank will be switching from a surface disposal site to land application (the state is requiring this change based on ground water concerns at the surface disposal site). Rapid City switched to a Class A composting process, which composts municipal solid waste with biosolids; because the final material is derived from biosolids, it all counts as biosolids now (including the solid waste portion).

Most significant current pressure on biosolids recycling: Odor complaints.

SEPTAGE MANAGEMENT

There is currently no formal septage regulatory program at the state level; DENR involvement is compliance-based.

Septage regulations updated: there are none

Number of full-time equivalent staff (FTEs) for septage program: 0

Septage haulers based in state (estimated): not known

Septage management: Septage can be land applied in accordance with the federal Part 503 regulations. POTWs are not required to accept septage, however, 2 or 3 do.

Percentage of each management practice: not known

Other concerns: South Dakota does not have any special program addressing fats, oils, and grease (FOG).

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: South Dakota

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	Yes	-	-
Other metals (boron, silver...)	-	-	-	-	-
Dioxins/furans	-	-	-	-	-
PCBs	-	-	-	-	-
Priority pollutants	-	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	-	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	-	-	-	-	-
Nutrients (NPK)	-	Yes	Yes	-	-
Pathogen reduction (Class A or B)	-	Yes	Yes	-	-
Vector attraction reduction (VAR)	-	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Both	Yes	BDMS Summary Attached
Part 503 metals	Yes	Yes	-	Both	-	-
Other metals	-	-	-	-	-	-
Dioxins/furans	-	-	-	-	-	-
PCBs	-	-	-	-	-	-
Priority pollutants	-	-	-	-	-	-
Other organic compounds	-	-	-	-	-	-
Radioactive isotopes	-	-	-	-	-	-
Nutrients (N, P, K)	Yes	Yes	-	Paper	-	-
Cumulative Pollutant Loading Rates	Yes	Yes	-	Paper	-	-
How biosolids achieve Class A or B	Yes	Yes	-	Paper	-	-
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	-	-
Solids stabilization processes used	-	-	-	-	-	-
Other biosolids treatments	-	-	-	-	-	-
End use/disposal practice	Yes	Yes	-	Both	-	-

South Dakota

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
770,621	75,884	10	20,318,036	28,110	0.000	0.0%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
		9,419	9,500			
Total Number of TWTDS in 2004**:						
	From CWNS		From Survey Q24			
	18		30			
Total number of TWTDS sending to Separate Preparers in 2004:						
			0			
Number of Separate Preparers:						
			0			
Number of operating sludge incinerators:						
			0			
Fluidized bed:						
			0			
Multiple hearth:						
			0			
Percent of population served by on-site (e.g. septic systems):						
			25%			
UNITS:						
Dry Metric Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

12,466 20,000

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator. Some TWTDS utilize more than one method of use and disposal, which results in an overcounting of the total number of TWTDS.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	18	5,832	62%
Disposal	7	1,259	13%
Other	5	2,328	25%
Total	30	9,419	100.00%

Beneficial Use

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	16	5,169	55%
Forestland	0	-	0%
Reclamation	1	156	2%
Class A EQ Distribution	1	507	5%
Total	18	5,832	62%
Long-term storage	5	2,328	25%

NOTES:

Some facilities store some biosolids prior to use. For example, Brookings and Sioux Falls have anaerobic digestion followed by air-drying in lagoons. Sioux Falls stores some biosolids in this way, but also land applies some immediately post-digestion.

Disposal

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	5	614	7%
Surface Disposal	2	645	7%
Incineration	0	-	0%
	7	1,259	13%

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	1	507	5%
Other Class A	0	-	0%
Class B	17	5,325	57%
Other (no data, etc.)	0	3,587	38%
Total	18	9,419	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...
Aerobic Digestion	7	649
Digestion-anaer./other	11	2,987
Lime/Alkaline	0	-
Composting	1	507
Thermal (not incineration)	0	-
Long-term (lagoons, reed beds, etc.)	4	239
Other	0	-
Belt Filter Press	2	233
Plate & Frame Press	0	-
Screw Press	0	-
Centrifuge	3	665
Vaccum Filter	0	-
Drying beds	9	239
Other	0	-

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

Tennessee

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Tennessee is not planning to seek delegation from the USEPA for Part 503.

State agency regulating biosolids: The water/ wastewater portion of Tennessee's environmental agency regulates biosolids and utilizes general NPDES type permits to regulate end use and disposal. The state does not require any formal site permits, but a site approval letter is required; this letter requires compliance with state guidelines and may include special, site-specific provisions.

Holder of liability: Tennessee does not allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Tennessee does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: Tennessee was delegated for NPDES primacy in 1977. All municipal NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 3

Biosolids regulations updated: June 2001

Management practices: The management practices of Tennessee's biosolids regulations are more restrictive than the federal Part 503 rule. These rules include additional buffers/ setbacks. Tennessee's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. Tennessee does not require additional monitoring at Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application.

Tennessee does not require formal nutrient management plans, but agronomic rates are reviewed and audited. Tennessee does not manage or control the application of phosphorus in biosolids.

Additional Management Actions: Tennessee does not require any additional oversight or certification to occur at biosolids land application sites. In Tennessee, some biosolids management groups perform the following oversight and certification voluntarily:

- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing.

Acres applied: In 2004, biosolids were applied to a total of about 16,000 acres. In 2004, 150 new site permits/approvals were issued.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency or from the EPA regional office. The data and reports are compiled electronically with Access.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Tennessee, use/disposal is being impacted by development of, or changes to, state biosolids regulations and changes to state statute(s) regarding biosolids management. These activities are likely to have the effect of reducing beneficial use. Development of, or changes to local (county, municipal) biosolids ordinances/regulations are happening, but will likely have no significant affect on

beneficial use. As of today, local units of government are allowed to adopt ordinances that are more restrictive than state law, but none have done so.

TRENDS

The beneficial use of biosolids is decreasing in Tennessee. Landfill tipping fees are relatively low, so more and more generators are opting for landfill disposal over land application.

Most significant current pressures on biosolids recycling:

1. Public perception (human waste – NIMBY).
2. Odor – damage to property value and quality of life
3. TMDLs
4. Poor terrain (karst) – concerns about direct connection to groundwater

SEPTAGE MANAGEMENT

Septage regulations updated: January 2006 (they are updated every year)

Number of full-time equivalent staff (FTEs) for septage program: There are 100 – 120 FTE working on septic systems and septage, but almost all are addressing installation and design of septic systems. Septage is mostly dealt with at the county level, and most is taken to POTW's. There are less than 10 septage land application sites, and the FTE working on the septage end is maybe 1 FTE.

Septage haulers based in state (estimated): 60

Septage management: Septage can be land applied if it meets Part 503. POTWs are not required to accept septage, but most, if not all, do.

Percentage of each management practice:

- Land applied = 5%
- Hauled to TWTDS = 95%

Other concerns: Tennessee considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the septage rules. Tennessee has a proactive program to collect FOG and keep it out of the general wastewater flow. All commercial establishments that might generate grease are required to have grease traps.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Tennessee

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	Yes	-	-
Other metals (boron, silver...)	No	No	-	-	-
Dioxins/furans	No	No	-	-	-
PCBs	No	No	-	-	We will be asking for PCB testing & TCLP in new rules - end 2006, 1st of 2007
Priority pollutants	No	No	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	-	-
Nutrients (NPK)	No	Yes	-	-	-
Pathogen reduction (Class A or B)	No	Yes	Yes	-	-
Vector attraction reduction (VAR)	No	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Paper	No	-
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	No	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	Yes	-	Paper	No	-
Cumulative Pollutant Loading Rates	Yes	Yes	-	Paper	No	-
How biosolids achieve Class A or B	Yes	Yes	-	Paper	No	-
How biosolids achieve Vector Attraction	Yes	Yes	-	Paper	No	-
Solids stabilization processes used	No	-	-	-	-	-
Other biosolids treatments	No	-	-	-	-	-
End use/disposal practice	Yes	-	-	Paper	No	-

Tennessee

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	5,893,298	41,217	143	6,992,992	74,086	0.031
						1.0%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24	Adjusted Estimate				
	218,668	219,000				
Total Number of TWTDS in 2004**:	From CWNS 245	From Survey Q24 54				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		2				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		30%				
UNITS:	Dry Metric Tons					

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

152,812 no data

NOTES: Data in these tables are from USEPA Region 4 years 2002-2006, the largest facilities in the state, and additional information from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator, with no facility counted twice. The compiled data represent ~72% of the centralized wastewater flow in the state and is considered fairly comprehensive. Note that many small facilities haul their solids to larger facilities for treatment, use, and/or disposal.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	29	33,170	15%	Memphis (~250 tons/day), Nashville (~150 tpd), Chattanooga (~120 tpd), and Knoxville (~100 tpd) account for ~80% of the total solids produced in the state, according to the state biosolids coordinator.
Disposal	23	132,515	61%	
Other	2	52,983	24%	
Total	54	218,668	100.00%	
	Beneficial Use			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	21	14,835	7%	
Rangeland	4	10,868	5%	
Reclamation	0	-	0%	
Class A EQ Distribution	4	7,467	3%	
Total	29	33,170	15%	
Long-term storage	2	52,983	24%	
	Disposal			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	21	94,092	43%	
Surface Disposal	2	38,423	18%	
Incineration	0	-	0%	
	23	132,515	61%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Class A EQ	5	16,556	8%	
Other Class A	0	-	0%	
Class B	17	54,353	25%	
Other (no data, etc.)	31	147,755	68%	8 TWTDS send 671 dry metric tons to beneficial uses, but it is unclear if they are Class A or B, so they are included here on the row "Other."
Total	53	218,664	100%	

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES: Data is incomplete. The majority of TWTDS in Tennessee use this treatment.
Aerobic Digestion	10	no data		
Digestion-anaer./other	1	no data		
Lime/Alkaline	2	no data		
Composting	0	no data		
Thermal (not incineration)	2	no data		
Long-term (lagoons, reed beds, etc.)	6	no data		
Other	4	no data		Sludge-mate screen boxes.
Belt Filter Press	3	no data		
Plate & Frame Press	1	no data		
Screw Press	0	no data		
Centrifuge	1	no data		
Vacuum Filter	0	no data		
Drying beds	2	no data		
Other	1	no data		Knoxville

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

Texas

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Texas has received delegation for the full Part 503 rule.

State agency regulating biosolids: The water/ wastewater portion of Texas's environmental agency regulates biosolids and utilizes specific NPDES type permits to regulate disposal. The agency grants site-specific permits with site-specific requirements for each separate land application site.

Holder of liability: Texas does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. This is happening in about 60 situations.

More than one Class B biosolids on one site? Texas does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year; this is actually being done at about 35 sites.

NPDES equivalent: TPDES is the state equivalent to NPDES. All TPDES/NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 3 (there are 5 FTEs who work 60% on biosolids and 40% on septage). In the wastewater area, there are another 12 FTEs who work in permitting of municipal TWTDS, the generators of biosolids.

Biosolids regulations updated: October 20, 2005.

Management practices: The management practices of Texas's biosolids regulations are more restrictive than the federal Part 503 rule. Texas rules include reporting requirements, nutrient management plan requirements, posting a sign at the site, hauling sludge in covered containers, and insurance requirements. Also, sites located in counties that border the Gulf of Mexico and contain wells within 500 feet are prohibited from applying biosolids. Texas's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. Texas requires additional monitoring at Class B land application sites. These additional requirements are site-specific, based on groundwater and soil conditions. Nitrogen is the basis for the agronomic loading rate for land application. Texas does require formal nutrient management plans. Texas uses site limitations, total P in soil, and available P in soil to manage or control the application of phosphorus in biosolids.

Additional Management Actions: Texas requires the following oversight and certification to occur at biosolids land application sites:

- Other requirements or actions to control odors at land application sites.
- Sampling and testing of Class A biosolids for the presence of pathogens, if three weeks or more have elapsed since processing. This data is collected, maintained, and held at the WWTP only. The state requires that they do it and have the information available if requested (the state does not routinely see this data).

It is unknown whether or not biosolids management groups perform additional oversight voluntarily.

Acres applied: In 2004, biosolids were applied to a total of 23,112 acres. There were 8 new site permits/approvals issued in 2004.

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency or from the state website. The data and reports are compiled electronically with Paradox 10, a specific program designed for the agency (it's a large data base that only the department uses). The agency has another database that the public can get information from, at a cost.

Legislative, regulatory, or other activity impacting biosolids use/disposal: There is no known legislative or regulatory activity happening or imminent related to biosolids in Texas. As of today, local units of government are allowed to adopt ordinances that are more restrictive than state law, but none have done so (although there is one county along the coast that is concerned about biosolids use and is protesting it).

TRENDS

The beneficial use of biosolids is not increasing in Texas, because of the adoption of stricter state regulations and higher fees for beneficial use that make landfilling easier for many facilities.

Most significant current pressures on biosolids recycling:

1. Public comment opportunity has increased.
2. Application fees (these fees are based on the amount of biosolids proposed to be land applied at the site).
3. Nutrient Management Plan information required prior to approval.
4. Amount of time it takes to issue a permit.

SEPTAGE MANAGEMENT

Septage regulations updated: 1995.

Number of full-time equivalent staff (FTEs) for septage program: 2 (there are 5 FTEs who work 40% on septage)

Septage haulers based in state (estimated): 683

Septage management: Septage can be land applied if it meets Part 503. POTWs are not required to accept septage, and the number that do is unknown; however, it is believed that all, or almost all, septage goes to landfills or land application.

Percentage of each management practice (estimated):

70 % landfill

30 % land application

Other concerns: Texas considers fats, oils, and grease (FOG) to be a significant issue. Texas does not regulate the use or disposal of grease trap waste. Texas has a proactive program to collect FOG and keep it out of the general wastewater flow. Texas encourages FOG to be directly placed in landfills. They do not allow FOG to be land applied.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Texas

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	Yes	-	-
Other metals (boron, silver...)	Yes	Yes	-	Based on the provisions of the municipal permit	-
Dioxins/furans	No	No	-	-	-
PCBs	Yes	Yes	-	Based on the provisions of the municipal permit	-
Priority pollutants	No	No	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	-	-
Nutrients (NPK)	No	Yes	Yes	-	-
Pathogen reduction (Class A or B)	Yes	Yes	Yes	-	-
Vector attraction reduction (VAR)	Yes	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	For Class B sludge, quarterly reports are required along with the annual reports	Both	No	-
Part 503 metals	Yes	-	-	Both	No	-
Other metals	No	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	No	-	Quarterly Report	Electronic	No	-
Cumulative Pollutant Loading Rates	Yes	-	Quarterly Report	Electronic	No	-
How biosolids achieve Class A or B	Yes	-	Quarterly Report	Both	No	-
How biosolids achieve Vector Attraction	Yes	-	-	Paper	No	-
Solids stabilization processes used	No	-	-	-	-	-
Other biosolids treatments	No	-	-	-	-	-
End use/disposal practice	-	-	-	-	-	-

Texas

Estimated population	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
22,471,549	261,797	86	38,657,710	160,352	0.017	0.6%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	642,578	643,000				
Total Number of TWTDS in 2004**:						
	From CWNS	From Survey Q24				
	1380	1067				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		4				
Number of operating sludge incinerators:		no data				
Fluidized bed:		no data				
Multiple hearth:		no data				
Percent of population served by on-site (e.g. septic systems):		no data				
UNITS: Dry Metric Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

457,576 no data

NOTES: Data in these tables are from USEPA Region 6, with assistance from Lynne Moss, CDM. They include gaps, and for a large proportion (~150,000 dmt), the method of use or disposal was not reported. There are several separate preparers in Texas: Synagro, Oscar Renda (Ft. Worth), Garden-Ville (San Antonio compost), and New Earth (San Antonio compost). In the recent past, Texas had higher rates of beneficial use of biosolids, but stricter legislation, regulations, and fees regarding land application of Class B biosolids have resulted in more going to landfill in the past few years: 250 land application authorizations in 2002 dropped to 75 in 2006.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	132	158,861	25%
Disposal	424	329,149	51%
No data on use or disposal	511	154,568	24%
Total	1067	642,578	100.00%

Beneficial Use

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	98	24,304	4%
Forestland	0	-	0%
Reclamation	0	-	0%
Class A EQ Distribution	34	134,557	21%
Total	132	158,861	25%
No data on use or disposal	511	154,568	24%

Includes composting at San Antonio and heat dried pellets at Houston and Waco.

Disposal

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	406	288,244	45%
Surface Disposal	14	40,311	6%
Incineration	4	594	0%
	424	329,149	51%

NOTES:

Dallas/Ft. Worth

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	34	134,557	21%
Other Class A	0	-	0%
Class B	98	24,304	4%
Other (no data, etc.)	935	483,717	75%
Total	1067	642,578	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	no data	no data	
Digestion-anaer./other	no data	no data	
Lime/Alkaline	no data	no data	
Composting	no data	no data	
Thermal (not incineration)	no data	no data	
Long-term (lagoons, reed beds, etc.)	no data	no data	
Other	no data	no data	
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	
Vaccum Filter	no data	no data	
Drying beds	no data	no data	
Other	no data	no data	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Utah

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Utah is delegated for the full rule 40 CFR Part 503; any changes to the federal rule will be adopted by Utah.

State agency regulating biosolids: The water/ wastewater portion of Utah's environmental agency regulates biosolids and utilizes specific NPDES-type permits to regulate end use and disposal and land application sites.

Holder of liability: Utah does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Utah does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: Utah's state equivalent of NPDES is the Utah Pollutant Discharge Elimination System (UPDES). These permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 1

Biosolids regulations updated: October 2001; this is also when Utah became delegated for Part 503.

Management practices: As of today, Utah's biosolids regulations are not more restrictive than the federal Part 503 rule. Utah is delegated for the Federal Part 503 rule. Utah does not require additional monitoring at Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application. Utah does not require formal nutrient management plans. Utah uses tests of total P in soil and available P in soil to control the application of phosphorus in biosolids.

Additional Management Actions: Utah does not require any additional oversight or certification to occur at biosolids land application sites, and biosolids management groups generally do not perform any additional oversight and certification voluntarily.

Acres applied: The number of acres to which biosolids were applied in 2004, and the number of new site permits, are not tracked.

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data to the state. The public can access these reports by mail or in person from the state agency or the EPA Region 8 office. The data and reports are compiled electronically using EPA's Biosolids Data Management System (BDMS).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Utah, there are no legislative or regulatory activities happening or imminent that would impact biosolids management. Utah has not had an issue of local units of government wanting to adopt ordinances that are more restrictive than state and federal laws and regulations.

TRENDS

The rate of beneficial use of biosolids is staying about the same in Utah; furthering the already high rate of beneficial use is difficult because of some odorous biosolids.

Most significant current pressures on biosolids recycling:

1. Odor

2. Cost
3. Space

SEPTAGE MANAGEMENT

Until recently, septage management has been overseen by local health departments; this may be changing and the state may become more involved soon, perhaps regulating septage pumpers/haulers and septage management by general permits.

Septage regulations updated: about 20 years ago

Number of full-time equivalent staff (FTEs) for septage program: 0.5 (same person as biosolids program)

Septage haulers based in state (estimated): 100

Septage management: Septage can be land applied if it meets Part 503. POTWs are not required to accept septage, however, 25 TWTDS do.

Percentage of each management practice: In Utah, some septage is land applied and the rest is hauled to TWTDS.

Other concerns: Utah does not consider fats, oils, and grease (FOG) to be a significant issue at this time. The use and disposal of grease trap waste is regulated under the septage and biosolids program. FOG is adequately addressed through pretreatment programs, which are created and enforced by individual TWTDS.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Utah

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	-	-	-
Other metals (boron, silver...)	No	-	-	-	-
Dioxins/furans	No	-	-	-	-
PCBs	No	-	-	-	-
Priority pollutants	No	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	-	-	-	-
Nutrients (NPK)	-	Yes	-	-	-
Pathogen reduction (Class A or B)	-	Yes	-	-	-
Vector attraction reduction (VAR)	-	Yes	-	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	X	-	Both	Yes	-
Part 503 metals	Yes	X	-	-	-	-
Other metals	No	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	-	-	-	-
Cumulative Pollutant Loading Rates	No	-	-	-	-	-
How biosolids achieve Class A or B	Yes	-	-	-	-	-
How biosolids achieve Vector Attraction	Yes	-	-	-	-	-
Solids stabilization processes used	Yes	-	-	-	-	-
Other biosolids treatments	Yes	-	-	-	-	-
End use/disposal practice	Yes	-	-	-	-	-

Utah

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	2,420,708	82,143	29	2,067,437	12,652	0.026
						0.9%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24	Adjusted Estimate				
	52,940	53,000				
Total Number of TWTDS in 2004**:	From CWNS	From Survey Q24				
	106	49				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		0				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		no data				
UNITS:	Dry Metric Tons					

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	28	44,527	84%	The numbers of TWTDS for each practice includes facilities that use more than one method of end use and disposal. There are approximately 30 individual larger TWTDS's data represented here.
Disposal	9	1,859	4%	
Other	12	6,554	12%	
Total	49	52,940	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	9	14,396	27%	Salt Lake City, the largest generator of biosolids in Utah (serving 179,900 people), used about 2/3 of its biosolids for mine reclamation in 2003; the other 1/3 was stored and its ultimate use was probably also for mine reclamation.
Forestland	0	-	0%	
Reclamation	5	11,040	21%	
Class A EQ Distribution	14	19,091	36%	
Total	28	44,527	84%	
Long-term storage	12	6,554	12%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
MSW landfill (incl dly cvr)	9	1,859	4%	Nine facilities landfilled at least some biosolids in 2003, but only three relied on landfilling for most of their biosolids.
Surface Disposal	0	-	0%	
Incineration	0	-	0%	
	9	1,859	4%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	16	19,091	36%
Other Class A	0	-	0%
Class B	5	25,436	48%
Other (no data, etc.)	2	8,413	16%
Total	23	52,940	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES: Incomplete data.
Aerobic Digestion	0	-		
Digestion-anaer./other	14	17,200		
Lime/Alkaline	1	579		
Composting	18	24,385		
Thermal (not incineration)	0	-		
Long-term (lagoons, reed beds, etc.)	14	6,554		
Other	0			
Belt Filter Press	13	no data		
Plate & Frame Press	0	no data		
Screw Press	3	no data		
Centrifuge	3	no data		
Vacuum Filter	1	no data		
Drying beds	7	no data		
Other	0	no data		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Vermont

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Vermont has applied for delegation for Part 503. EPA has not taken any action on the application in several years.

State agency regulating biosolids: The water/ wastewater and solid waste portions of Vermont's environmental agency regulate biosolids. The biosolids and septage management program are physically located in the Wastewater Management Division. However, because, under Vermont statute, sludge and septage are defined as solid wastes, the program is not under the authority that USEPA has delegated to the state to administer the NPDES program; rather, the management of sludge and septage is regulated under the Vermont Solid Waste Management Rules. Vermont utilizes solid waste permits to regulate end use and disposal and land application sites.

Holder of liability: Vermont does allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use, but there are no cases of this happening.

More than one Class B biosolids on one site? Vermont does allow *Class B* biosolids from more than one TWTDS to be land applied on the same site in the same crop year, but it is not actually being done.

NPDES equivalent: Vermont's NPDES program is delegated, but NPDES permits do not include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 2.75

Biosolids regulations updated: February 1989.

Management practices: The management practices of Vermont's biosolids regulations are more restrictive than the federal Part 503 rule. The Vermont rules establish different/additional minimum isolation distances and prohibited areas under §6-502 and §6-503 of the Solid Waste Rules. Vermont's pathogen and/or vector attraction reduction limits are more restrictive than the federal Part 503 rule. The state of Vermont does not allow the use of the enteric virus, viable helminth ova, and the non-process based alternatives for meeting the pathogen reduction standards that are allowed under 40 CFR Part 503. This is a policy, rather than a rule-based prohibition. Vermont has more restrictive pollutant (trace metals, etc.) limits. Vermont requires additional monitoring at Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application. Vermont does not require formal nutrient management plans. Vermont does manage or control the application of phosphorus in biosolids: the state has established a policy-based maximum application rate of 5.0 dry tons/acre for any biosolids that contain phosphorus-removal sludge.

Additional Management Actions: Vermont requires the following oversight and certification to occur at biosolids land application sites:

- Other requirements or actions to control odors at land application sites. These include setbacks.
- Sampling and testing of Class A biosolids for the presence of pathogens, if three weeks or more have elapsed since processing.

In Vermont some biosolids management programs perform the following oversight and certification voluntarily:

- Other requirements or actions to control odors at land application sites. These include setbacks.

Acres applied: In 2004, biosolids were applied to a total of 423 acres. In 2004, no new site permits/approvals were issued.

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with Clarion and Top Speed.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Vermont, legislative or regulatory activity is happening by development of, or changes to, state biosolids regulations. These activities are likely to have no effect on beneficial use. There is also some minor, generally unorganized, local opposition for biosolids management, but will likely have no significant effect. As of today, local units of government are allowed to adopt ordinances that are more restrictive than state law. Vermont municipalities may restrict land application through their zoning ordinances. Solid Waste Management Districts may impose more stringent siting criteria than is established in the Vermont rules. As of today, no municipality or district has enacted any such restrictions.

TRENDS

The beneficial use of biosolids is not increasing in Vermont; it remains steady.

Most significant current pressures on biosolids recycling:

1. Odors.
2. Increasing development/population density in rural areas.
3. Cost.

TESTING AND REPORTING

Vermont requires all sewage sludge to be tested for Part 503 metals, chromium, and PCBs. However, tests for organic compounds are only required as part of the TCLP analysis that must be done once every five years. For those biosolids that are used as fertilizers and soil amendments, testing for nutrients, pathogen reduction, and vector attraction reduction is required.

The frequency of testing required in Vermont varies depending on flow and sludge management strategy. Most TWTDS in Vermont are tested once per year, except for the larger ones that land apply biosolids twice per year; they must test twice per year. Currently, the only Vermont TWTDS that fall into the quarterly testing category per Part 503 are PFRP facilities that are required to test each batch that is released for public distribution.

Vermont requires TWTDS and biosolids preparers to report all of the following to the State Department of Environmental Conservation (DEC): amounts of biosolids used or disposed, levels of Part 503 metals, other metals, PCBs, other organic compounds, nutrients, how biosolids achieve stabilization and vector attraction reduction and by what method(s), and the final end use or disposal practice. DEC keeps records of these reported data in paper and electronic formats and can produce computer-driven reports, as needed.

SEPTAGE MANAGEMENT

Septage regulations updated: February 1989.

Number of full-time equivalent staff (FTEs) for septage program: 0.25

Septage haulers based in state (estimated): 35

Septage management: Septage can be land applied if it meets Part 503 and the following additional requirements: pH \geq 12 for a minimum of two hours, for pathogen reduction. 27 POTWs currently accept septage. POTWs must accept septage if they have accepted certain funds for facility upgrade/refurbishment projects. Otherwise, POTWs are not required to accept septage.

Percentage of each management practice:

- Land applied = 15.6%
- Hauled to TWTDS = 81.5%
- Disposed of in lagoons = 0.5%
- Dewatered, then landfilled = 2.4%

Other concerns: Vermont considers fats, oils, and grease (FOG) to be a significant issue, but does not regulate use and disposal of grease trap waste. Vermont does not have a proactive program to collect FOG and keep it out of the general wastewater flow, although such a program is currently being developed by the Chittenden Solid Waste District under a state grant.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Vermont

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	No	See attachment A - note 12	-
Other metals (boron, silver...)	No	Yes	No	See attachment A - note 13	-
Dioxins/furans	No	No	No	See attachment A - note 12	-
PCBs	Yes	Yes	No	See attachment A - note 12	-
Priority pollutants	No	No	No	See attachment A - note 12	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	Yes	Yes	No	See attachment A - note 13	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	No	See attachment A - note 12	-
Nutrients (NPK)	No	Yes	No	See attachment A - note 12	-
Pathogen reduction (Class A or B)	No	Yes	No	See attachment A - note 12	-
Vector attraction reduction (VAR)	No	Yes	No	See attachment A - note 12	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	-	Quarterly	Both	Yes	2004 report attachment D
Part 503 metals	Yes	-	Quarterly	Both	Yes	2004 report attachment E
Other metals	Yes	-	Quarterly	Both	No	Reports can be generated if needed
Dioxins/furans	No	-	Quarterly	-	-	Reports can be generated if needed
PCBs	Yes	-	Quarterly	Both	No	Reports can be generated if needed
Priority pollutants	No	-	Quarterly	-	-	Reports can be generated if needed
Other organic compounds	Yes	-	Quarterly	Both	No	Reports can be generated if needed
Radioactive isotopes	No	-	Quarterly	-	-	Reports can be generated if needed
Nutrients (N, P, K)	Yes	-	Quarterly	Both	No	Reports can be generated if needed
Cumulative Pollutant Loading Rates	No	-	Quarterly	-	-	Reports can be generated if needed
How biosolids achieve Class A or B	Yes	-	Quarterly	Both	No	Reports can be generated if needed
How biosolids achieve Vector Attraction	Yes	-	Quarterly	Both	No	Reports can be generated if needed
Solids stabilization processes used	Yes	-	Quarterly	Both	No	Reports can be generated if needed
Other biosolids treatments	No	-	Quarterly	-	-	Reports can be generated if needed
End use/disposal practice	Yes	-	Quarterly	Both	Yes	2004 Report attachment D

Vermont

Estimated population	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
621,233	9,249	67	567,509	5,103	0.016	0.5%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	8,973	9,000				
Total Number of TWTDS in 2004**:		From CWNS	From Survey Q24			
	87		59			
Total number of TWTDS sending to Separate Preparers in 2004:						
		23				
Number of Separate Preparers:						
		0				
Number of operating sludge incinerators:						
		0				
Fluidized bed:						
		0				
Multiple hearth:						
		0				
Percent of population served by on-site (e.g. septic systems):						
		53%				
UNITS:						
		Dry U.S. Tons				

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	21	6,316	70%	
Disposal	38	2,657	30%	
Other	0	-	0%	
Total	59	8,973	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	12	813	9%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	9	5,503	61%	
Total	21	6,316	70%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	21	2,323	26%	
Surface Disposal	0	-	0%	
Incineration	17	334	4%	
	38	2,657	30%	

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator.

NOTES: The majority of biosolids in Vermont are composted to Class A standards; most of this is from Chittenden County, the Burlington area, where many TWTDS cooperatively send wastewater solids to Québec for composting.

NOTES: The incinerator used most commonly is at Glens Falls, NY.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	9	5,503	61%
Other Class A	0	-	0%
Class B	12	813	9%
Other (no data, etc.)	38	2,657	30%
Total	59	8,973	100%

NOTES:

The Class A material is compost, most of it created in Québec by private contractor.

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		
Aerobic Digestion	4	101		
Digestion-anaer./other	3	339		
Lime/Alkaline	8	797		
Composting	4	591		
Thermal (not incineration)	0	-		
Long-term (lagoons, reed beds, etc.)	0	-		
Other	1	11		
Belt Filter Press	17	6,056		
Plate & Frame Press	0	-		
Screw Press	0	-		
Centrifuge	3	367		
Vaccum Filter	0	-		
Drying beds	6	155		
Other	3	55		
				2 rotary drums, 1 gravity box
				Air drying

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

Virginia

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Virginia is not planning to seek delegation from the USEPA for Part 503. In Virginia, the Department of Environmental Quality (DEQ), Water Quality Division, authorizes the land application of sewage sludge when it is conducted by the generator, under a VPDES permit. About 5% of the biosolids land applied in Virginia is regulated in this way. The same Division also authorizes land application of industrial sludge by the generator or a contractor under a non-discharge (Virginia Pollution Abatement) permit. In 2006, the Virginia Department of Health (VDH), Office of Environmental Health Services, authorized further treatment, land application, or distribution for beneficial use of biosolids by contractors under a Biosolids Use operating permit. This accounted for about 95% of the biosolids land applied in Virginia. Composting and landfilling of sewage sludge must be permitted by the DEQ, Solid Waste Division, and incineration of sewage sludge must be permitted by the DEQ, Air Division. Virginia utilizes specific NPDES type permits, solid waste permits, and air permits to regulate end use and disposal and land application sites. In 2007, legislation was adopted that gives most responsibility for biosolids regulation to the DEQ, beginning early in 2008.

Holder of liability: Virginia does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. In 2006, Biosolids Use Operating permits, issued by VDH, transferred a portion of the liability for biosolids end use to the permittee, usually a land application contractor.

More than one Class B biosolids on one site? Virginia does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year, and this is being done at over 200 sites.

NPDES equivalent: Virginia is delegated for NPDES, and all permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 4

Biosolids regulations updated: 2003.

Management practices: The management practices of Virginia's biosolids regulations have been more restrictive than the federal Part 503 rule. These rules include infrequent vs. frequent land application restrictions; slope restrictions; time of year restrictions; buffers to property lines, wells, homes, rock outcrops, and sinkholes; nutrient management plan requirements; allowances for local county monitoring; and allowances for additional setbacks for individuals with "health problems." Virginia's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive than the Part 503 rule. Virginia requires additional monitoring at Class B land application sites and groundwater monitoring is required at sites that receive biosolids on a frequent basis at 100% of the crop needs for nitrogen. Nitrogen and phosphorus are the basis for the agronomic loading rate for land application. Virginia does require formal nutrient management plans. To manage or control the application of phosphorus in biosolids, Virginia uses site limitations, tests of available P in soil, a P index, slope, and the assumption that available P equals total P in biosolids for nutrient management plans prepared in accordance with regulations. In early 2008 or after, some of these regulations may change.

Additional Management Actions: Virginia requires the following oversight and certification to occur at biosolids land application sites:

- Certification of biosolids land appliers who manage or implement land application programs may soon be required.
- Other requirements or actions to control odors at land application sites, on a case-by-case basis.

In Virginia some biosolids management groups perform the following oversight and certification voluntarily:

- Independent inspections or monitoring at land application sites, including some local monitors, if established by local ordinance.
- Certification of biosolids land appliers who manage or implement land application programs.

Acres applied: In 2004, biosolids were applied to a total 50,488 acres – out of a total of 381,731 permitted acres (according to information provided by VDH). In 2004, 63 new site permits/approvals were issued.

Reporting and Record-keeping: As of 2006, major TWTDS, along with sludge-only processing facilities, are required to report biosolids information and data. In accordance with VPDEQ Permit Regulation, reporting is also required for POTWs that serve a population of 10,000 or greater and Class I Sludge management facilities. A Class I sludge management facility is any POTW required to have an approved pretreatment program and any other treatment works of domestic sewage whose sludge use or disposal practices have the potential to adversely affect public health and the environment as identified by the DEQ regional administrator and the agency director. The public can access biosolids management reports by mail or in person from the state agencies involved or from the EPA regional office. The data and reports are compiled electronically with Oracle AS Discover – MS Internet Explorer (at DEQ) and Excel and Access (at VDH).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Virginia, legislative and regulatory activity is occurring, with a shift in responsibility for biosolids regulation to the DEQ in early 2008. These activities are likely to somewhat reduce beneficial use. In addition, changes to 4 VAC 5-15, the Nutrient Management Training and Certification Regulations that limit biosolids land application based on phosphorus content (and assuming all phosphorus in biosolids is available), will result in a reduction of beneficial use. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law, although a few local counties and towns have been challenging this and adopting restrictive ordinances in recent years (to date, legal actions have annulled such ordinances).

TRENDS

The beneficial use of biosolids is increasing in Virginia, due to population growth and the resultant increase in production of wastewater solids. However, some public concerns and pressures may counteract this.

Most significant current pressures on biosolids recycling:

1. Claims of illness associated with biosolids land application activities.
2. Overly conservative P-based nutrient management plans.
3. Poor public perception resulting from biosolids odors.

SEPTAGE MANAGEMENT

Septage is being generated at an increasing rate in Virginia as pressure increases on landowners to have their septic tanks pumped every five years to reduce nutrient loading to Chesapeake Bay and other surface waters. The proper management of septage is becoming an increasing issue and there is a need for more solutions other than hauling to TWTDS that are facing increasingly stiff effluent nutrient limits and cannot afford to take in much nutrient-rich septage.

Septage regulations updated: Virginia has no formal state septage regulations. Septage that is land applied must be managed like biosolids in accordance with state regulations and Part 503. Short-term treatment in the hauling truck is discouraged and most land-applied septage is treated over a long term in lagoons, then tested and treated prior to land application.

Number of full-time equivalent staff (FTEs) for septage program: 0.05 at the state level, but there are county employees too who do permitting and enforcement of septage hauling vehicles and haulers.

Septage haulers based in state (estimated): This is not known: there are 99 counties that each conduct permitting and enforcement of septage hauling operations.

Septage management: TWTDS are not required to accept septage, and most don't, because of the high nutrient load in septage. VDH recommends that TWTDS take in no more than 3% of daily flow in the form of septage.

Percentage of each management practice:

- Land applied = some
- Hauled to TWTDS = most
- Placed in lagoons = some
- There is at least one developing septage-only treatment facility, but there is a need for more.

Other concerns: Virginia counties are responsible for septage hauling permits; they also oversee the management of fats, oils, and grease (FOG). Much FOG is managed by placement in lagoons, just as some septage is managed. Some high grade FOG is recycled.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Virginia

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	-	VDH requires that for facilities over 1 MGD that land apply biosolids, to test when they land apply biosolids (typically > once/year)
Other metals (boron, silver...)	Yes	Yes	-	Chromium and Molybdenus is monitored at a frequency similar to other metals in accordance with Part 503	-
Dioxins/furans	-	-	-	-	-
PCBs	-	-	-	-	-
Priority pollutants	-	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	-	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	-	-	-	-	-
Nutrients (NPK)	Yes	Yes	Yes	-	VDH requires that for facilities over 1 MGD that land apply biosolids, to test when they land apply biosolids (typically > once/year)
Pathogen reduction (Class A or B)	Yes	Yes	Yes	-	VDH requires that for facilities over 1 MGD that land apply biosolids, to test when they land apply biosolids (typically > once/year)
Vector attraction reduction (VAR)	Yes	Yes	Yes	-	VDH requires that for facilities over 1 MGD that land apply biosolids, to test when they land apply biosolids (typically > once/year)

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Paper	Yes	See four attachments provided by VDH Contact Charles Swanson for more information.
Part 503 metals	Yes	Yes	-	Paper	No	-
Other metals	Yes	-	Mo according to the same frequency specified in Part 503	Paper	No	-
Dioxins/furans	-	-	-	-	-	-
PCBs	-	-	-	-	-	-
Priority pollutants	-	-	-	-	-	-
Other organic compounds	-	-	-	-	-	-
Radioactive isotopes	-	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	Monthly reports	Paper	No	-
Cumulative Pollutant Loading Rates	Yes	-	Monthly reports	Paper	No	-
How biosolids achieve Class A or B	Yes	Yes	-	Both	No	Data is available electronically at DEQ but only for TWTDS that land apply the biosolids they generate
How biosolids achieve Vector Attraction	Yes	Yes	-	Both	No	Data is available electronically at DEQ but only for TWTDS that land apply the biosolids they generate
Solids stabilization processes used	Yes	-	Monthly reports	Both	No	Data is available electronically at DEQ but only for TWTDS that land apply the biosolids they
Other biosolids treatments	Yes	-	At the time of VPDES permit issuance/reissuance	Paper	No	-
End use/disposal practice	Yes	-	At the time of VPDES permit issuance/reissuance	Paper	No	-

Virginia

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	7,481,332	39,594	189	4,194,158	41,047	0.038
						1.3%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24 159,995	Adjusted Estimate 160,000	Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)	140,468	Dry tons, reported to BioCycle Survey (Goldstein, 2000)	225,000
Total Number of TWTDS in 2004**:	From CWNS 225	From Survey Q24 261				
Total number of TWTDS sending to Separate Preparers in 2004:	614					
Number of Separate Preparers:	0					
Number of operating sludge incinerators:	6					
Fluidized bed:	0					
Multiple hearth:	6					
Percent of population served by on-site (e.g. septic systems):	no data					
UNITS:	Dry Metric Tons					

Biosolids Use and Disposal Summary (2004 data)				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Beneficial Use	69	49,085	31%	The Virginia Department of Health, which regulated land application of biosolids in 2004, reported a total of 223,739 dry metric tons of biosolids were applied in the state that year. As in other years, much of this total comes from out of state, such as Washington, DC.
Disposal	137	96,140	60%	
Other	55	14,770	9%	
Total	261	159,995	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	NOTES:
Agricultural	63	44,250	28%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	6	4,835	3%	
Total	69	49,085	31%	
Long-term storage	55	14,770	9%	Many of these facilities only remove biosolids from lagoons every 15 - 20 years (and not in 2004).
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	125	32,024	20%	
Surface Disposal	0	-	0%	
Incineration	12	64,116	40%	
	137	96,140	60%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	6	4,835	3%
Other Class A	0	-	0%
Class B	64	44,411	28%
Other (no data, etc.)	147	110,748	69%
Total	217	159,994	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	no data	no data	
Digestion-anaer./other	no data	no data	
Lime/Alkaline	no data	no data	
Composting	no data	no data	
Thermal (not incineration)	no data	no data	
Long-term (lagoons, reed beds, etc.)	no data	no data	
Other	no data	no data	
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	no data	no data	
Other	no data	no data	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006
SUMMARY OF STATE COORDINATOR RESPONSES

Washington

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Washington is planning to seek delegation from USEPA sometime in the future when resources allow.

State agency regulating biosolids: The solid waste portion of Washington's environmental agency regulates biosolids; however, some local health departments have received delegation to administer portions of the program. Washington utilizes solid waste permits to regulate end use and disposal and land application sites through a general permit and site-specific approval.

Holder of liability: Washington does allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. There are 5 cases where this is happening.

More than one Class B biosolids on one site? Washington does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year. This is not actually being done.

NPDES equivalent: Washington deals with biosolids through the solid waste program. Not all NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 5

Biosolids regulations updated: February 1998, however, state regulation is currently being revised, with an expected completion date of June 30, 2007.

Management practices: The management practices of Washington's biosolids regulations are essentially the same as Part 503. Washington's pathogen and/or vector attraction reduction limits are not more restrictive. Washington has more restrictive pollutant (trace metals, etc.) limits. The state has a standard and high quality molybdenum limit of 75 mg/kg. In addition, if biosolids subject to the CPLR have ever been applied to a site, and biosolids subject to the CPLR are proposed for application, and the amount of pollutants applied previously can be determined, the amount applied must be included in CPLR calculations. Managing biosolids with APLR is not an option in Washington, as only EQ biosolids may be sold or given away in a bag or other container. While the state regulation does not require additional monitoring at Class B land application sites, site-specific approvals typically include additional monitoring requirements. Commonly required are tests for fecal coliform and nitrate-N in drinking waters and residual plant-available N in soils. Frequency of testing is site-specific, but annual testing is most common. Nitrogen is the basis for the agronomic loading rate for land application. Washington does not require formal nutrient management plans. Washington does not manage or control the application of phosphorus in biosolids at this time.

Additional Management Actions: Washington requires the following oversight to occur at biosolids land application sites:

- Sampling and testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since processing. This is required if the generator still has control of the biosolids.

In Washington, some biosolids management groups perform the following oversight voluntarily:

- Independent inspections or monitoring at land application sites.

- Actions to control odors at land application sites.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with Excel and the EPA Biosolids Data Management System (BDMS).

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Washington, development of, or changes to state biosolids regulations, is happening or is imminent and will likely have no significant affect on beneficial use. As of today, local units of government are allowed to adopt ordinances that are more restrictive than state law, but may not prohibit beneficial use. One county in Washington has adopted more restrictive biosolids application ordinances, but the total number of restrictive ordinances is remaining the same.

TRENDS

The beneficial use of biosolids is increasing in Washington. The percent of beneficial use has remained fairly constant for several years. However, the mass of biosolids beneficially used has increased over the past few years due to lagoon clean-outs.

Most significant current pressures on biosolids recycling:

1. Public perception of risks.
2. Increased transportation costs.
3. Low disposal costs in some counties.

SEPTAGE MANAGEMENT

Septage regulations updated: February 1998. The state regulations are currently being updated, with an expected completion date of June 30, 2007. Septage management requirements are more restrictive, in that alkaline-stabilized and non-alkaline-stabilized septage must meet the same site access and crop harvesting restrictions.

Number of full-time equivalent staff (FTEs) for septage program: 1.1

Septage haulers based in state (estimated): This number is unknown, because the haulers are permitted by local health departments unless they land apply or treat septage.

Septage management: Septage can be land applied if it meets Part 503. POTWs are not required to accept septage. It is unknown how many TWTDS accept septage.

Percentage of each management practice: This information is not available, as we do not track the amount hauled to TWTDS, and TWTDS are not required to report volumes received. Only septage operations that land apply or treat septage are required to report.

Other concerns: Washington does not consider fats, oils, and grease (FOG) to be a significant issue. The use and disposal of grease trap waste falls under the...

- septage rules, if it is less than 25% of the total volume, and
- solid waste rules, if it is greater than 25% in the septage mixture.

Washington does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Washington

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	No	Yes	Yes	-	-
Other metals (boron, silver...)	No	No	-	-	-
Dioxins/furans	No	No	-	-	-
PCBs	No	No	-	-	-
Priority pollutants	No	No	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	No	-	-	-
Nutrients (NPK)	No	Yes for N; No	-	-	-
Pathogen reduction (Class A or B)	No	Yes	Yes	-	-
Vector attraction reduction (VAR)	No	Yes	Yes	-	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	Electronic	Yes	1) Biosolids production & Management in WA via Annual Reports
Part 503 metals	Yes	Yes	-	Electronic	No	-
Other metals	No	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes for	-	-	Electronic	No	-
Cumulative Pollutant Loading Rates	Yes if	Yes	-	-	No	-
How biosolids achieve Class A or B	Yes	Yes	-	Electronic	Yes	1) Pathogen Reduction Method for WA Facilities via 2003 Annual Reports
How biosolids achieve Vector Attraction	Yes	Yes	-	Electronic	Yes	1) Pathogen and VAR Methods for WA Facilities via 2004 Annual Reports
Solids stabilization processes used	No	-	-	-	-	-
Other biosolids treatments	No	-	-	-	-	-
End use/disposal practice	Yes	Yes	-	Electronic	Yes	1) Biosolids Production & Management in WA via 2002 Annual Reports

Washington

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland (units/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
6,207,046	66,544	93	8,038,469	28,184	0.014	0.5%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	110,567	110,600		172,629		75,000
Total Number of TWTDS in 2004**:						
	From CWNS	From Survey Q24				
	246	370				
Total number of TWTDS sending to Separate Preparers in 2004:	95					
Number of Separate Preparers:	25					
Number of operating sludge incinerators:	5					
Fluidized bed:	5					
Multiple hearth:	0					
Percent of population served by on-site (e.g. septic systems):	34%					
UNITS: Dry U.S. Tons						

Estimates from other sources:
 Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)
 172,629
 Dry tons, reported to BioCycle Survey (Goldstein, 2000)
 75,000

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	125	84,606	77%
Disposal	27	20,397	18%
Other	218	5,564	5%
Total	370	110,567	100.00%
Beneficial Use			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	80	66,975	61%
Forestland	12	1,121	1%
Reclamation	9	3,290	3%
Class A EQ Distribution	24	13,220	12%
Total	125	84,606	77%
Long-term storage	218	5,564	5%
Disposal			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	18	4,688	4%
Surface Disposal	0	-	0%
Incineration	9	15,709	14%
	27	20,397	18%

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	24	13,320	12%
Other Class A	0	-	0%
Class B	105	74,242	67%
Other (no data, etc.)	241	23,005	21%
Total	370	110,567	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	33	1,800	
Digestion-anaer./other	30	51,651	
Lime/Alkaline	24	5,214	
Composting	21	7,776	
Thermal (not incineration)	3	2,469	
Long-term (lagoons, reed beds, etc.)	no data	no data	
Other	no data	no data	
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	
Vaccum Filter	no data	no data	
Drying beds	no data	no data	
Other	no data	no data	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

West Virginia

REGULATION AND PERMITTING

Delegated by EPA for biosolids? West Virginia is planning to seek delegation from USEPA sometime in the future when resources allow.

State agency regulating biosolids: The WV DEP Division of Water & Waste Management regulates biosolids and utilizes general NPDES type permits to regulate end use and disposal and land application sites. Individual NPDES permits are issued for plants > .05 MGD. A General Permit is issued for < .05 MGD. Site-specific land application information is incorporated into individual permits for land application. Almost all < .05 MGD plants are pumped out and either disposed of at POTW, land applied by a septic hauler, or landfilled.

Holder of liability: West Virginia does allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use. To date, there are no cases where the biosolids producer has turned over legal liability to the landowner.

More than one Class B biosolids on one site? West Virginia does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: West Virginia is delegated for NPDES. All NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 1.4

Biosolids regulations updated: June 2000

Management practices: The management practices of West Virginia's biosolids regulations are more restrictive than the federal Part 503 rule. These management practices include site restrictions; setbacks from surface waters, drinking water supplies, and dwellings; slope restrictions; pH restrictions; and soil permeability requirements. West Virginia's pathogen and/or vector attraction reduction limits are not more restrictive. West Virginia has more restrictive pollutant (trace metals, etc.) limits. West Virginia requires additional monitoring at Class B land application sites, with annual soil testing for nutrients and metals every 5 year permit cycle or when at 50% site lifetime loading rate. Nitrogen is the basis for the agronomic loading rate for land application. West Virginia does not require formal nutrient management plans. West Virginia does not manage or control the application of phosphorus in biosolids.

Additional Management Actions West Virginia requires the following oversight and certification to occur at biosolids land application sites:

- Sampling and testing of Class A biosolids for the presence of pathogens, if three weeks or more have elapsed since processing.

In West Virginia, no biosolids management groups are known to perform any additional oversight or certification voluntarily.

Acres applied in 2004: Data not collected or provided.

Reporting and Record-keeping: Both major and minor facilities are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with the state's proprietary ERIS system for NPDES – they are slowly getting more biosolids information into this system.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In West Virginia, there are no legislative or regulatory activities happening or imminent that are likely to impact biosolids management. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law. There are no towns or counties that have more restrictive biosolids ordinances.

TRENDS

The beneficial use of biosolids is not increasing in West Virginia. The overall percentage (landfill vs. land app.) remains relatively constant. Tonnage increases slightly over time due to expansions of collection systems and plants upgrading size and technology.

Most significant current pressures on biosolids recycling:

1. Nuisance type complaints –odors, etc.
2. Phosphorus issues.
3. Funding.

SEPTAGE MANAGEMENT

Septage regulations updated: 2000.

Number of full-time equivalent staff (FTEs) for septage program: 0.6

Septage haulers based in state (estimated): 125

Septage management: Approximately 60% of the population of West Virginia relies on septic systems. Septage can be land applied if it meets Part 503 and the following additional requirements: annual soil samples, and must hold pH at or above 12 for 2 hours. POTWs are not required to accept septage. However, ~10 TWTDS accept septage.

Percentage of each management practice:

- Land applied = 50 %
- Hauled to TWTDS = 50 %

Other concerns: West Virginia considers fats, oils, and grease (FOG) to be a significant issue.

West Virginia does not regulate the use and disposal of grease trap waste. West Virginia does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: West Virginia

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	x		quarterly for majors, every six months for minors
Other metals (boron, silver...)					
Dioxins/furans					
PCBs					
Priority pollutants					
Other organic compounds (e.g. PDBEs, pharmaceuticals)					
Radioactive isotopes (alpha, beta, Ra 224, etc.)					
Nutrients (NPK)		Yes			initially for land application, and every permit cycle
Pathogen reduction (Class A or B)		Yes	x		monthly PR and VAR reporting requirements
Vector attraction reduction (VAR)		Yes	x		monthly PR and VAR reporting requirements

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes			monthly	Paper	No
Part 503 metals	Yes	x			Paper	No
Other metals						
Dioxins/furans						
PCBs						
Priority pollutants						
Other organic compounds						
Radioactive isotopes						
Nutrients (N, P, K)						
Cumulative Pollutant Loading Rates						
How biosolids achieve Class A or B						
How biosolids achieve Vector Attraction	Yes	x	monthly	Paper	No	
Solids stabilization processes used						
Other biosolids treatments						
End use/disposal practice	Yes		monthly		No	

West Virginia

Estimated population	Land area (sq. mi.) (www.quickfacts.census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
1,812,548	24,077	75	1,173,032	17,821	0.025	0.8%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	28,315	29,000				
Total Number of TWTDS in 2004**:						
	From CWNS	From Survey Q24				
	217	131				
Total number of TWTDS sending to Separate Preparers in 2004:						
		0				
Number of Separate Preparers:						
		0				
Number of operating sludge incinerators:						
		1				
Fluidized bed:						
		1				
Multiple hearth:						
		0				
Percent of population served by on-site (e.g. septic systems):						
		no data				
UNITS:						
Dry U.S. Tons						

Estimates from other sources:

Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)

Dry tons, reported to BioCycle Survey (Goldstein, 2000)

39,898 no data

NOTES: Data in these tables are from the national Biosolids Quality and End Use Survey completed by the state biosolids coordinator and are estimates. As elsewhere, West Virginia has scores of small, package plants and lagoons that often haul solids to larger facilities or store in lagoons, not using or disposing of solids every year.

Biosolids Use and Disposal Summary (2004 data)			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Beneficial Use	76	13,400	47%
Disposal	55	14,915	53%
Other	0	-	0%
Total	131	28,315	100.00%
Beneficial Use			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
Agricultural	75	10,100	36%
Forestland	0	-	0%
Reclamation	1?	1,000	4%
Class A EQ Distribution	1	2,300	8%
Total	76	13,400	47%
Long-term storage	0	-	0%
Disposal			
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)
MSW landfill (incl dly cvr)	53	10,765	38%
Surface Disposal	1	750	3%
Incineration	1	3,400	12%
	55	14,915	53%

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	2	2,400	8%
Other Class A	0	-	0%
Class B	74	12,400	42%
Other (no data, etc.)	55	14,915	50%
Total	131	29,715	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...		NOTES: Incomplete data in this table.
Aerobic Digestion	4	260		
Digestion-anaer./other	7	3,000		
Lime/Alkaline	49	4,485		
Composting	2	2,400		
Thermal (not incineration)	0	-		
Long-term (lagoons, reed beds, etc.)	36	no data		
Other	no data	no data		
Belt Filter Press	no data	no data		
Plate & Frame Press	no data	no data		
Screw Press	no data	no data		
Centrifuge	2	no data		
Vacuum Filter	no data	no data		
Drying beds	no data	no data		
Other	no data	no data		

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Wisconsin

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Wisconsin is delegated for the land application, landfill, and surface disposal portions of Part 503.

State agency regulating biosolids: The water/ wastewater portion of Wisconsin's environmental agency regulates biosolids and utilizes specific NPDES type permits to regulate end use and disposal and land application sites. This includes the oversight of parts of 503, for which the state is not delegated, but still regulate (ie, septage and incineration).

Holder of liability: Wisconsin does not allow land applicators or landowners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Wisconsin does not allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year.

NPDES equivalent: WPDES is the state equivalent to NPDES. All WPDES/NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 12

Biosolids regulations updated: January 1996.

Management practices: The management practices of Wisconsin's biosolids regulations are more restrictive than the federal Part 503 rule. The state rules include setback requirements for surface water, homes, public and private wells, businesses, recreation areas, and schools; slope restrictions; depth to groundwater and bedrock; soil permeability; winter prohibition; and property lines. Wisconsin's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive. Wisconsin does, however, regulate radium 226 in land applied biosolids when it is naturally present in a community water supply system.

Wisconsin requires additional monitoring at Class B land application sites, with soil tests required every 4 years. Nitrogen is the basis for the agronomic loading rate for land application. Wisconsin does not require formal nutrient management plans, because they consider the regulations to sufficiently manage nutrients. Wisconsin uses time of year, site limitations, increased distance to surface water, and slope to manage or control the application of phosphorus in biosolids.

Additional Management Actions: Wisconsin requires the following oversight and certification to occur at biosolids land application sites:

- Certification of biosolids land applicators who manage or implement land application programs.
- Other requirements or actions to control odors at land application sites. These include setbacks.
- Sampling and testing of Class A biosolids for the presence of pathogens, if three weeks or more have elapsed since processing.

In Wisconsin some biosolids management programs perform the following oversight and certification voluntarily:

- Independent inspections or monitoring at land application sites.

- Certification of biosolids land applicators who manage or implement land application programs.
- Sampling and testing of Class A biosolids for the presence of pathogens, if three weeks or more have elapsed since processing.

Acres applied: In 2004, biosolids were applied to a total of 37,199 acres. In 2004, 888 new site permits/approvals were issued.

Reporting and Record-keeping: Both major and minor facilities, along with sludge-only processing facilities, are required to report biosolids information and data. The public can access these reports by mail or in person from the state agency. The data and reports are compiled electronically with Excel and Access.

Legislative, regulatory, or other activity impacting biosolids use/disposal: In Wisconsin, use/disposal is being impacted by development of, or changes to, state biosolids regulations, local (county, municipal) biosolids ordinances/regulations, and changes to state statute(s) regarding biosolids management. These activities are likely to have the effect of expanding beneficial use. Another impact on biosolids use is that phosphorus-based nutrient management planning may be expanding with changes to NRCS 590, State Agriculture rules, and the development of P indices. This may or may not reduce beneficial use. Exemptions for biosolids are in these rules, but farmers may still be reluctant to accept biosolids if they also land apply manure. As of today, local units of government are not allowed to adopt ordinances that are more restrictive than state law. Several towns and counties in Wisconsin have adopted more restrictive biosolids application ordinances, but the total number is unknown. Overall the number of more restrictive ordinances is decreasing, and all will be rescinded or modified in the near future.

TRENDS

The beneficial use of biosolids is increasing in Wisconsin. Beneficial use remains fairly constant at about 98% of TWTDS. Some who have landfilled will be shifting to land application. Limiting local ordinances will make it easier and more cost effective to land apply, in that shorter distances may be involved; however, no facility has stopped land application due to ordinances.

Most significant current pressures on biosolids recycling:

1. The concern that the EPA will not be proactive in promoting biosolids beneficial recycling and retaining strong technical support and research on emerging issues.
2. Phosphorus issues, as mentioned above.
3. Availability of contract storage for biosolids and co-mingled waste. Since Wisconsin requires 180 days of storage, some facilities are utilizing private contractors to store and manage their biosolids. Such a facility is issued a WPDES permit and considered a generator. However, dairy waste and other industrial wastewater may also be mixed in storage, and odors and uncertainty over the mixture have created public opposition in some cases.

SEPTAGE MANAGEMENT

Septage regulations updated: January, 1997, with a slight modification in 1999.

Number of full-time equivalent staff (FTEs) for septage program: 2.1

Septage haulers based in state (estimated): 495

Septage management: Septage can be land applied if it meets Part 503 and the following additional requirements: site approvals and requirements are identical to biosolids land application, except no soil test is required. Wisconsin generally limits application to 39,000 gallons/acre/crop/year (100 lbs N), with winter prohibitions and restrictions. POTWs are not required to accept septage. However, 193 TWTDS accept septage (122 take it from septic tanks, and 15 take it from grease traps).

Percentage of each management practice:

- Land applied = 30 % (252,517,200 gal.)
- Hauled to TWTDS = 70 % (583,126,496 gal.) The amount hauled to TWTDS can be further broken down to 63.4 % (529,414,886 gal.) from holding tanks, 6.3% (52,376,252 gal.) from septic tanks, and 0.2% (1,335,358 gal.) from grease traps.

Other concerns: Wisconsin considers fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste falls under the septage rules. Wisconsin has a proactive program to collect FOG and keep it out of the general wastewater flow. Wisconsin encourages having FOG fed directly into anaerobic digesters and allows land application of grease trap waste at one-third the rate of septage.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Wisconsin

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes		Per part 503. Lagoons and other systems that do not remove biosolids in permit terms (5 years) must analyze for metals once in that time
Other metals (boron, silver...)	No	No		Yes	Per priority pollutant scan below (not required for metals not listed as PP)
Dioxins/furans				Yes	See PPS below
PCBs				Yes	Once in permit term (5 years)
Priority pollutants				Yes	Once in permit term if design flow greater than 40 MG. Once every two permit terms if between 5 and 40 MGD
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	No			
Radioactive isotopes (alpha, beta, Ra 224, etc.)	Yes	Yes		Yes	If radioactivity is greater than 2 pCi/L in water supply then biosolids must be tested for RA 226, generally at same frequency as metals. Cumulative soil limits are applied.
Nutrients (NPK)	No	Yes		Yes	Generally must be analyzed just prior to land application.
Pathogen reduction (Class A or B)	No	Yes	Yes		If testing is required for non 503
Vector attraction reduction (VAR)	No	Yes	Yes		If testing is required for non-503

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
	Yes/No	In accordance with Part 503 requirements	Other... please specify	Paper/Electronic	Yes/No	
The amounts of biosolids/sewage sludge used or disposed	Yes		By January 31 of following year	Electronic	Yes	
Part 503 metals	Yes		(1) By January 31 following year of analysis	Electronic	Yes	
Other metals	Yes		(1)	Electronic	No	All electronically stored data is extractable from data base but reports are not generally ...
Dioxins/furans	Yes		(1)	Electronic	No	
PCBs	Yes		(1)	Electronic	No	
Priority pollutants	Yes		(1)	Electronic	No	
Other organic compounds	No					
Radioactive isotopes	Yes		(1)	Electronic	Yes	
Nutrients (N, P, K)	Yes		(1)	Electronic		
Cumulative Pollutant Loading Rates	Yes		If permittee exceeds HQ limit, they must retain these records. We keep records for everyone	Electronic	Yes	
How biosolids achieve Class A or B	Yes		(1)	Electronic	Yes	
How biosolids achieve Vector Attraction	Yes		(1)	Electronic	Yes	
Solids stabilization processes used	Yes		With permit application or when a change	Electronic	Yes	
Other biosolids treatments	Yes		With permit application or when a change			
End use/disposal practice	Yes		(1)	Electronic	Yes	

Wisconsin

Estimated population	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
5,503,533	54,310	101	10,728,655	69,883	0.015	0.5%
Total Biosolids Used or Disposed in 2004*:						
	From State Survey Q24	Adjusted Estimate				
	163,107	163,100		137,327	Dry tons, reported to BioCycle Survey (Goldstein, 2000)	37,000
Total Number of TWTDS in 2004**:		From CWNS	From Survey Q24			
		597	404			
Total number of TWTDS sending to Separate Preparers in 2004:		89				
Number of Separate Preparers:		5				
Number of operating sludge incinerators:		2				
Fluidized bed:		0				
Multiple hearth:		2				
Percent of population served by on-site (e.g. septic systems):		36%				
UNITS: Dry Metric Tons						

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	388	134,372	82%	
Disposal	16	28,735	18%	
Other	0	-	0%	
Total	404	163,107	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	386	91,846	56%	
Forestland	0	-	0%	
Reclamation	0	-	0%	
Class A EQ Distribution	2	42,526	26%	
Total	388	134,372	82%	
Long-term storage	0	-	0%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	10	12,153	7%	
Surface Disposal	0	-	0%	
Incineration	6	16,582	10%	
	16	28,735	18%	

NOTES:

There are two incinerators, and one receives solids from 4 other TWTDS.

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	9	47,227	29%
Other Class A	0	-	0%
Class B	294	87,145	53%
Other (no data, etc.)	0	28,735	18%
Total	303	163,107	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	NOTES:
Aerobic Digestion	209	no data	
Digestion-anaer./other	109	no data	
Lime/Alkaline	7	no data	
Composting	0	no data	
Thermal (not incineration)	1	no data	
Long-term (lagoons, reed beds, etc.)	10	no data	
Other	0	no data	
Belt Filter Press	38	no data	
Plate & Frame Press	2	no data	
Screw Press	0	no data	
Centrifuge	8	no data	
Vaccum Filter	1	no data	
Drying beds	20	no data	
Other	29	no data	Gravity belt thickener

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.

National Biosolids Quality and End Use Survey, May 2006

SUMMARY OF STATE COORDINATOR RESPONSES

Wyoming

REGULATION AND PERMITTING

Delegated by EPA for biosolids? Wyoming is not planning to seek delegation for Part 503.

State agency regulating biosolids: The water quality division of Wyoming's environmental agency (Wyoming Department of Environmental Quality) is notified of biosolids management activities, but formal permitting, oversight, and enforcement are mostly conducted by U.S. EPA Region 8, which has in place a general permit for biosolids land application, surface disposal, and landfilling that essentially follows the requirements of Part 503. In years past, a few small biosolids land application projects have been permitted and overseen by the state.

Holder of liability: Wyoming does not allow land applicators or land owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use.

More than one Class B biosolids on one site? Wyoming does allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year, but this is not being done.

NPDES equivalent: Wyoming works with USEPA on the NPDES program. NPDES permits include requirements for biosolids use or disposal.

Number of full-time equivalent staff (FTEs) for biosolids program: 0.05

Biosolids regulations updated: Wyoming has no formal state-level biosolids regulations.

Management practices: In Wyoming, biosolids are managed in accordance with the federal Part 503 rule. Wyoming's pathogen and/or vector attraction reduction limits and pollutant (trace metals, etc.) limits are not more restrictive than Part 503. Wyoming does not require additional monitoring of Class B land application sites. Nitrogen is the basis for the agronomic loading rate for land application. Wyoming does not require formal nutrient management plans. Wyoming has no special provisions for management of phosphorus in biosolids.

Additional Management Actions: Wyoming does not require any additional oversight and certification to occur at biosolids land application sites, and none are known to be done by those managing biosolids.

Acres applied: The number of acres to which biosolids were applied in 2004 is not known. Wyoming does not require site permits for land application (it falls under the U.S. EPA General Permit).

Reporting and Record-keeping: Major facilities, along with sludge-only processing facilities, are required to report biosolids information and data to USEPA Region 8, with copies sent to Wyoming DEQ. The public can access these reports from U.S. EPA Region 8. Wyoming biosolids data is compiled electronically by U.S. EPA Region 8, using the U.S. EPA's Biosolids Data Management System (BDMS).

Legislative, regulatory, or other activity impacting biosolids use/disposal: There is no such activity impacting the management of biosolids in Wyoming. No towns or counties in Wyoming have adopted more restrictive biosolids application ordinances, although there is nothing to keep them from doing so.

TRENDS

The beneficial use of biosolids remains steady in Wyoming. Composting of biosolids is becoming more common, especially in larger municipalities. Water reuse is also growing in popularity.

Most significant current pressures on biosolids recycling: Lack of population generating biosolids.

SEPTAGE MANAGEMENT

Septage regulations updated: Wyoming has no formal state septage regulations; the federal Part 503 must be followed.

Number of full-time equivalent staff (FTEs) for septage program: 0

Septage haulers based in state (estimated): No data provided.

Septage management: Septage can be land applied if it meets Part 503 and it is kept adequate distances away from surface and ground waters. POTWs are not required to accept septage, but some do.

Percentage of each management practice: Only a small amount of septage is land applied, and mostly on rural ranches. The remainder is hauled to TWTDS.

Other concerns: Wyoming does not consider fats, oils, and grease (FOG) to be a significant issue, and the use and disposal of grease trap waste is in accordance with Part 503 and other federal regulations. Wyoming does not have a proactive program to collect FOG and keep it out of the general wastewater flow.

BIOSOLIDS TESTING & REPORTING REQUIREMENTS - 2006

State: Wyoming

Current testing requirements, 2006: for each of the following constituents in biosolids, indicate if testing is required by your state:

TESTING	...for all sewage sludge or biosolids	...for biosolids being beneficially used as fertilizers and soil amendments	FREQUENCY OF TESTING...		IF frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
			In accordance with Part 503 requirements	Other...Please specify:	
Part 503 metals (As, Cu, Hg, etc.)	Yes	Yes	Yes	And EPR R8 General Permit	-
Other metals (boron, silver...)	No	-	-	-	-
Dioxins/furans	No	-	-	-	-
PCBs	No	-	-	-	-
Priority pollutants	No	-	-	-	-
Other organic compounds (e.g. PDBEs, pharmaceuticals)	No	-	-	-	-
Radioactive isotopes (alpha, beta, Ra 224, etc.)	No	-	-	-	-
Nutrients (NPK)	Yes	Yes	-	And EPR R8 General Permit	-
Pathogen reduction (Class A or B)	Yes	Yes	Yes	And EPR R8 General Permit	-
Vector attraction reduction (VAR)	Yes	Yes	Yes	And EPR R8 General Permit	-

Current reporting requirements, 2006: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state:

REPORTING:	Reporting required?	Frequency of reporting		How is the data stored by the state?	Is data compiled by the state in reports or summaries?	
		Yes/No	In accordance with Part 503 requirements		Paper/Electronic	Yes/No
The amounts of biosolids/sewage sludge used or disposed	Yes	Yes	-	-	-	-
Part 503 metals	Yes	Yes	-	-	-	-
Other metals	No	-	-	-	-	-
Dioxins/furans	No	-	-	-	-	-
PCBs	No	-	-	-	-	-
Priority pollutants	No	-	-	-	-	-
Other organic compounds	No	-	-	-	-	-
Radioactive isotopes	No	-	-	-	-	-
Nutrients (N, P, K)	Yes	-	And EPR R8 General Permit	-	-	-
Cumulative Pollutant Loading Rates	No	-	-	-	-	-
How biosolids achieve Class A or B	Yes	Yes	And EPR R8 General Permit	-	-	-
How biosolids achieve Vector Attraction	Yes	Yes	And EPR R8 General Permit	-	-	-
Solids stabilization processes used	Yes	Yes	And EPR R8 General Permit	-	-	-
Other biosolids treatments	-	-	-	-	-	-
End use/disposal practice	Yes	Yes	And EPR R8 General Permit	-	-	-

Wyoming

	Land area (sq. mi.) (www.quickfacts. census.gov)	Pop. Density (pop/sq.mi)	Total Cropland in Farms (acres, USDA, 2002)	Number of Farms With That Total Cropland (USDA, 2002)	Application rate if all state biosolids (adj. estimate) were applied to cropland at typical rate (~ 3 dry ton/ac)	Percentage of acres needed if all state biosolids were applied to cropland at typical rate (~ 3 dry ton/ac)
Estimated population	505,887	97,100	5	2,989,804	7,017	0.008
						0.3%
Total Biosolids Used or Disposed in 2004*:	From State Survey Q24 24,224	Adjusted Estimate 24,000				
Total Number of TWTDS in 2004**:	From CWNS 123	From Survey Q24 21				
Total number of TWTDS sending to Separate Preparers in 2004:		0				
Number of Separate Preparers:		0				
Number of operating sludge incinerators:		0				
Fluidized bed:		0				
Multiple hearth:		0				
Percent of population served by on-site (e.g. septic systems):		30%				
UNITS: Dry Metric Tons						

Estimates from other sources:
 Dry U. S. tons, from EPA Biosolids Generation Factor x Flow (EPA CWNS, 2004)
 9,784

Dry tons, reported to BioCycle Survey
 (Goldstein, 2000)
 3,600

NOTES: Data in these tables were provided by EPA Region 8 and includes all of the major TWTDS in the state.

Biosolids Use and Disposal Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Beneficial Use	10	13,792	57%	
Disposal	5	698	3%	
Other	6	9,734	40%	
Total	21	24,224	100.00%	
Beneficial Use				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
Agricultural	7	12,890	53%	
Forestland	0	-	0%	
Reclamation	1	37	0%	
Class A EQ Distribution	2	865	4%	
Total	10	13,792	57%	
Long-term storage	6	9,734	40%	
Disposal				
	Number of Entities (TWTDS & Sep. Preparers) Going To...	Quantity of Biosolids	Percentage (quantity)	
MSW landfill (incl dly cvr)	3	308	1%	
Surface Disposal	2	390	2%	
Incineration	0	-	0%	
	5	698	3%	

Biosolids Quality Summary (2004 data)

	Number of Entities (TWTDS & Sep. Preparers) Producing...	Quantity of Biosolids	Percentage (quantity)
Class A EQ	2	920	100%
Other Class A	0	-	0%
Class B	0	-	0%
Other (no data, etc.)	0	-	0%
Total	2	920	100%

Summary of Current Biosolids Treatment Practices

	Estimated Number of TWTDS Using...	Estimated Quantity of Biosolids Produced Using...	
Aerobic Digestion	4	1,218	
Digestion-anaer./other	5	5,226	
Lime/Alkaline	0	-	
Composting	1	481	
Thermal (not incineration)	0	-	
Long-term (lagoons, reed beds, etc.)	0	-	
Other	1	439	
Belt Filter Press	3	1,015	
Plate & Frame Press	0	-	
Screw Press	0	-	
Centrifuge	0	-	
Vacuum Filter	0	-	
Drying beds	9	6,551	
Other	1	439	

* "Total biosolids generated in 2004" and all other amounts reported in these tables are in the units noted (dry U.S. tons, dry metric tons, or wet U.S. tons). The total "From State Survey Q24" was reported by the state biosolids coordinator, the regional USEPA office, and/or the largest individual TWTDS in the state. The "Adjusted Estimate" is an appropriately rounded figure to indicate some level of uncertainty; it is used in national totals.

** "Total Number of TWTDS in 2004" shows two totals: the number of individual TWTDS reporting flow in the 2004 CWNS data, and, "From Survey Q24," the sum of TWTDS shown in the "Beneficial Use" and "Disposal" tables, below. The second total can be higher than the number of individual TWTDS that actually used or disposed of solids in 2004, because many facilities send solids to two or more use or disposal options in a given year. TWTDS = Treatment Works Treating Domestic Sewage. CWNS = Clean Watershed Needs Survey, 2004 data.