

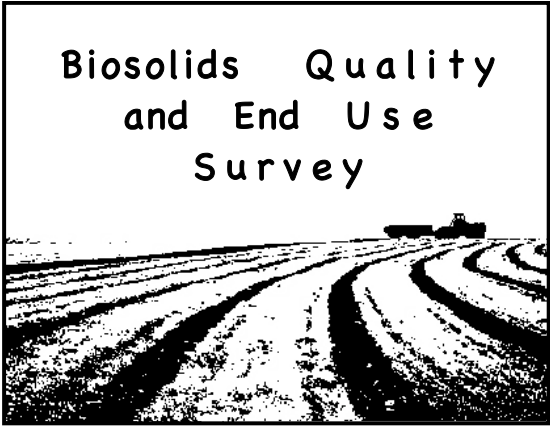
APPENDIX A

The Data Collection Tools / Questionnaires:

1. “Biosolids Quality and End Use Survey”

2. The “Online” Survey

Due by May 19, 2006.



Welcome to the biosolids quality and end use survey. Recently, U.S. EPA awarded funding for a national biosolids information initiative. The survey below, developed specifically for state coordinators, is the first effort since 2000 to thoroughly update national biosolids quality, end use, and disposal information.

Your participation will help to advance understanding of biosolids management. The results of this survey will be critical for states, regions, and the country as a whole in understanding trends and planning for future biosolids management.

Thank you, in advance, for taking the time to participate. We appreciate that it will take you considerable effort, but we think it will be worthwhile for everyone. Send your completed survey and any biosolids data summaries or reports that your state has developed in the past 3 years (that will help us understand your state’s situation) to NEBRA:

Email: ned.beecher@nebiosolids.org (write survey, scan it, and email it). **Fax:** 603-323-7654 **By phone:** 603-323-7654
U. S. Postal Service: P. O. Box 422, Tamworth, NH 03886 **Other delivery:** 85 Main Street, Tamworth, NH 03886

NOTE: As part of quality control, we will be completing a data summary for each state. We will send your state summary to you for review and confirmation of the accuracy of how we have compiled and summarized the information you submit.

Ned Beecher Executive Director	Nora Goldstein Executive Editor	Greg Kester Biosolids coordinator	Maile Lono Manager	Elizabeth Dziezyk Project Intern
New England Biosolids and Residuals Assoc. (NEBRA)	<i>BioCycle</i>	Wisconsin Dept. of Natural Resources	Northwest Biosolids Management Assoc. (NBMA)	University of Maine, Orono

Directions

- ✓ Please provide the requested information to the best of your knowledge.
- ✓ Please add explanatory comments (*e.g.* if data is estimated).
- ✓ A list of definitions appears on the next page – the first time these words appear in the survey, they are marked with an *.
- ✓ All biosolids quantity & quality data should be for 2004. Other questions are as of today (May, 2006).
- ✓ All data should be in dry U. S. tons or dry metric tons (not gallons, please). Please indicate metric or U.S. where asked to.
- ✓ All data should be based on biosolids produced at Treatment Works Treating Domestic Sewage (TWTDS) in your state (do not include biosolids imported into your state).
- ✓ If your state has situations that do not seem to fit into particular tables, don’t struggle – just write a quick note, attach an existing document that addresses the question, and/or leave it to us to call you for follow-up explanation and clarification.

Definitions – refer to these as needed; the first time these words appear in the survey, they are marked with an *.

APLR (Annual Pollutant Loading Rate): The maximum amount of regulated pollutants in biosolids that can be applied to a site in one year.

Biosolids: municipal sewage sludge that has been treated and tested and meets standards for beneficial use as a soil amendment or fertilizer

Beneficial use of biosolids (as a soil amendment and/or fertilizer): biosolids applied in bulk to farm or other soils or made into compost and fertilizer products or otherwise treated and used in some way that results in their ultimate application to soils or soil-like products (e.g. potting mixes) – for this survey, does not include biosolids incinerated or landfilled, even if these involve energy recovery

Ceiling limit: refers to the numerical standards in federal and state regulations which, if exceeded by any pollutant (e.g. heavy metal), means a biosolids cannot be land applied or used beneficially; in the federal regulations (Part 503), the ceiling limits are listed in Table 1.

Class A biosolids: domestic sewage sludge that has been treated to meet the requirements of 40 CFR Part 503.32(a), which includes options for advanced, or further, pathogen reduction (e.g. PFRP)

Class B biosolids: domestic sewage sludge that has been treated to meet the requirements of 40 CFR Part 503.32(b), which includes options for significantly reducing pathogens (e.g. PSRP)

CPLR (Cumulative Pollutant Loading Rates): The maximum amount of regulated pollutants in biosolids that can be applied to a site considering all biosolids applications since July 20, 1993

EQ biosolids: Bulk or bagged biosolids that meet a) Part 503, Table 3 (and Table 1) pollutant concentrations, b) one of the Class A pathogen reduction standards in Part 503, and c) specific vector attraction reduction processes in Part 503 (options 1 through 8).

High quality limit: refers to the numerical standards in federal (and some state regulations) which, if exceeded by any pollutant (e.g. heavy metal), means a biosolids cannot be generally distributed to the public without restrictions; in the federal regulations (Part 503), the ceiling limits are listed in Table 1 and the “high quality limits” are lower numerical standards (lower concentrations of pollutants) in Table 3.

Industrial pretreatment program: a formal program, as required by federal regulations, conducted by a TWTDS, for permitting, controlling, and monitoring industrial discharges to a sewer system

MGD: million gallons per day, the standard for measuring wastewater flow

MSW: municipal solid waste

NPK: abbreviations for nitrogen, phosphorus, and potassium, the major plant nutrients

Organic chemical compounds: chemical compounds containing carbon that are present in sewage sludges and biosolids, including polychlorinated biphenyls (PCBs), dioxins/furans, volatile organic compounds (VOCs), pesticides, herbicides, polybrominated diphenyl ethers (PDBEs), etc. and including compounds found in pharmaceuticals and personal care products (PPCPs).

Pollutant: the term used (including officially by EPA) for the variety of contaminants in sewage sludge or biosolids, including trace elements (heavy metals) and organic chemical compounds

POTW: publicly owned treatment works; includes public municipal wastewater treatment facilities, lagoons, ponds, etc.

Separate preparer: a biosolids management operation that takes in sewage sludge from one or more TWTDS and treats it to create biosolids that are generally used as soil amendments and/or fertilizers – an example is a regional composting facility

Treatment Works Treating Domestic Sewage (TWTDS): Includes POTWs and privately-owned wastewater treatment facilities, of all sizes, that treat *domestic* sewage (does not include industrial wastewater treatment facilities such as at paper mills). Sewage sludge from TWTDS must generally be managed in accordance with Part 503 (503 applies to the sludge from POTWs and private facilities treating domestic sewage).

Your Current Information

State: _____ Person completing survey: _____ Date completed: _____
How we can reach you with follow-up questions: email: _____ Phone: _____
State agency's biosolids website (if any): _____

Infrastructure

1. Number of Treatment Works Treating Domestic Sewage (TWTDS)* in your state **in 2004**: _____
2. Number of regional biosolids* preparers* in your state (biosolids management facilities that take in sewage sludge from one or more TWTDS and treat it to create biosolids that are generally used as soil amendments and/or fertilizers) **in 2004**: _____
3. Number of operating sewage-sludge-only incinerators in your state **in 2004**: _____
How many fluidized bed? _____ How many multiple hearth? _____
4. Number of TWTDS in your state that **currently** have active industrial pretreatment* programs: _____

Regulation and Permitting - Current (May 2006)

5. As of today, which of the following applies regarding delegation of your state to administer the federal 40 CFR Part 503 biosolids rule:
 Have received delegation from USEPA for full rule
 Have received delegation from USEPA for portion of the rule (indicate which portion(s)): _____
 In process of applying for or having application reviewed
 Planning to seek delegation from USEPA sometime in the future when resources (e.g. time and funding) allow.
 Not planning to seek delegation from USEPA
6. As of today, what division(s) of your state's government regulates and/or oversees biosolids management, disposal, and end use?
 Environment agency - water / wastewater program Public health department or agency (indicate state or county)
 Environment agency - solid waste program Other: (please specify: _____)
If you checked more than one, explain the different roles of each: _____
7. (a) What mechanism does that state agency utilize to regulate biosolids end use and disposal?
 specific NPDES type permit general NPDES type permit solid waste license/permit other - please specify: _____
(b) Indicate how biosolids land application sites are permitted: under the system described in (a) above
 issued as a separate general permit issued as separate site-specific permits other - please specify: _____
8. Does your state allow land applicators or land-owners (who are not the TWTDS generator) to become the holder of legal liability for biosolids end use? yes no
In how many cases are land applicators and/or land-owners currently the holder of legal liability for biosolids end use? _____

9. Does your state allow *Class B* biosolids from more than one TWTDS to be land applied on the same site in the same crop year?
 yes no
 If yes, is it actually being done? yes no If yes, on how many sites is it done each year? _____
- ~~10. What is the name of the state program that is the equivalent to the federal NPDES program (if state is not authorized/delegated), i.e. Utah's NPDES equivalent is called Utah Pollution Discharge Elimination System UPDES? BAD QUESTION - DATA NOT USED~~
- ~~11. In your state, do all NPDES (or equivalent state permits) include requirements for sewage sludge/BAD QUESTION - DATA NOT USED~~
12. As of today, how many full-time employees and full-time employee equivalents (FTEs) work in your state's biosolids program? Include only the proportion of a person's time spent on *biosolids*; i.e. one individual biosolids and septage coordinator may spend .7 FTE on biosolids and .3 FTE on septage; include *only* the biosolids amount here: _____
13. When were your state's biosolids/sewage sludge management regulations last updated formally (month/year): _____
14. As of today (May 2006), are your state's biosolids regulations *more restrictive* than the federal Part 503 rule? Yes No
 If yes, indicate in which areas they are more restrictive:
 Management practices (setbacks, public access restrictions, etc.)
Please explain: _____
 Pathogen and/or vector attraction reduction limits (*e.g.* your state requires tests or certifications different from Part 503)
Please explain: _____
 Pollutant* (trace metals, etc.) limits.
 If so, list state limits in this table:

State trace metal (pollutant) concentration limits in biosolids

	Arsenic As	Cadmium Cd	Chromium Cr	Copper Cu	Lead Pb	Mercury Hg	Molybdenum Mo	Nickel Ni	Selenium Se	Zinc Zn
EPA Table 1	75	85	(3000)	4300	840	57	(75)	420	100	7500
EPA Table 3 & CPLR*	41	39	(1200)	1500	300	17		420	36	2800
State ceiling limit*										
State high quality* limit, if any										
State CPLR, if different from 503										
State APLR,* if different from 503										

15. Indicate if any of the following oversight, certification, odor control, or pathogen control requirements are currently required or occur voluntarily for biosolids land application programs in your state:

	Required by state	Done voluntarily by at least some biosolids management programs
Independent (not from TWTDS or contracted land applier) inspectors or monitors at land application sites		
Certification of biosolids land appliers (land application contractors or TWTDS operators) who manage or implement land application programs		
Numerical odor emission limits at land application sites		
Other requirements or actions to control odors at land application sites (nuisance restrictions)		
Sampling and testing of Class A biosolids for the presence of pathogens <i>if three weeks or more have elapsed since processing (e.g. after curing or storage).</i>		

16. Does your state require any additional monitoring (e.g. groundwater, soil, plant) at Class B land application sites? yes no
If yes, please explain (at what sites it is required, testing for what parameters, frequency of testing, etc.): _____

17. As of today, what is the basis of your state's agronomic loading rate for land application of biosolids?
 Nitrogen Phosphorus Other (specify): _____

18. Does your state require formal nutrient management plans for sites where biosolids are land applied? yes no

19. Does your state manage or control application of phosphorus in biosolids in any way? yes no
How? (indicate all that apply):
 time of year of application site limitations slope
 based on test of *total P* in soil increased distance to surface water using a P index
 based on test of *available P* in soil
 Other (please specify): _____

~~20. (a) Indicate the total number of acres in your state that were newly permitted by the state (site specific permits) to receive land applied biosolids in 2004 (do not include re-permitting of existing sites). _____ acres~~

~~Indicate the number of acres in (a), above, to which biosolids were actually applied in 2004: _____ acres.~~

~~How many new site permits/approvals were issued in 2004? _____ BAD QUESTION DATA NOT USED~~

21. From whom does your state require reporting of biosolids information and data? Indicate all that apply:
 only major TWTDS (>1 MGD*) majors and minors sludge-only processing facilities
 Specify how the public can access these reports and/or data summaries (indicate all that apply):
 From state website By mail or in person from state agency From POTW or TWTDS websites
 From EPA regional office From regional association website Other (please specify): _____

22. If your state compiles and/or reports data electronically, what program(s) are used? Indicate all that apply: BDMS PCR
 Excel Access Filemaker Other (please specify): _____

23. **Biosolids Quality – 2004 Data:** In the table below, include only sewage sludge and biosolids *generated* in your state, *no matter if it is treated and/or used* in your state or in another state or country. Include sewage sludge and biosolids removed from lagoons (or other long-term accumulation) *that was used or disposed in 2004, but do not include untreated sludge* collecting in lagoons. *To avoid double counting*, enter information for a separate preparer*, TWTDS, or biosolids *only* in the most stringent, or highest quality, category that it meets (*i.e.* if a biosolids is EQ, enter it only in that row). If you have situations that are *difficult to fit into the tables*, make a note and we will call you for clarification. Yellow **highlights** indicate critical data not to be missed.

Sewage sludge / biosolids:	...sent to separate preparer(s)* in or out of state			...NOT sent to separate preparer(s)		
	Number of TWTDS that sent to separate preparer(s): <input type="text"/>	Quantity sent to separate preparer(s) (dry tons—indicate metric or U. S. at left): <input type="text"/>		Number of TWTDS that did <i>not</i> send their sewage sludge to a separate preparer and that met this standard in 2004	Quantity of biosolids, generated by these TWTDS, that met this standard in 2004 (dry tons)	If not tracked by tons, estimate <i>percentage</i> of biosolids generated by these TWTDS that met this standard in 2004 (%)
Biosolids Quality <i>Data are (check one):</i> <input type="checkbox"/> <i>dry metric tons</i> <input type="checkbox"/> <i>dry U. S. tons</i>	Number of separate preparers that produced biosolids from the TWTDS included above, that met this standard in 2004	Quantity of biosolids produced by these separate preparers that met this standard in 2004 (dry tons)	If not tracked by tons, estimate the <i>percentage</i> of biosolids, produced by separate preparers, that met this standard in 2004			
	Exceptional Quality (EQ*): Class A, VAR process (503 options 1 thru 8), and Part 503 Table 3 (and Table 1) trace metal (pollutant) limits					
a. Heat dried and pelletized fertilizer product (bagged or bulk)						
b. Compost (bagged or bulk)						
c. Other EQ product (e.g. advanced limed, bagged or bulk)						
Class A, VAR process, and Table 1 (ceiling) trace metal limits						
Class B, VAR, and Table 3 (high quality) trace metal limits						
Class B, VAR, and Table 1 trace metal limits						
TWTDS and sewage sludge/biosolids in your state for which you have no trace metal data (TWTDS that landfill may not need to test)						
TWTDS and sewage sludge/biosolids for which you have no info on Class A or Class B (TWTDS that landfill might not treat)						

a, b, c are sub-categories of EQ. If you can, fill these in. The totals in the first row should include all these.

24. **Biosolids End Use & Disposal – 2004 Data:** In the table below, include only sewage sludge and biosolids *generated* in your state, *no matter if it is treated and/or used* in your state or in another state or country. Include sewage sludge and biosolids removed from lagoons (or other long-term accumulation) *that was used or disposed in 2004, but do not include untreated sludge* collecting in lagoons. If you have situations that are *difficult to fit into the tables*, make a note and we will call you for clarification. Yellow **highlights** indicate critical data not to be missed.

Sewage sludge / biosolids:	...sent to separate preparer(s)* in or out of state			...NOT sent to separate preparer(s)		
	Number of TWTDS sending to separate preparers: (same as 23)	Quantity sent to separate preparers (dry tons – indicate metric or U. S. at left): (same as 23)		Number of TWTDS that did <i>not</i> send to a separate preparer and utilized this practice in 2004 for some of their biosolids (some TWTDS will be counted more than once if they used multiple practices)	Quantity of biosolids, generated by these TWTDS, that was used or disposed of by this practice in 2004 (dry tons)	If not tracked by tons, estimate percentage of biosolids generated by these TWTDS that was used or disposed of by this practice (%)
<p>End Use & Disposal</p> <p><i>Data are (check one):</i></p> <p><input type="checkbox"/> dry metric tons</p> <p><input type="checkbox"/> dry U. S. tons</p>	Number of separate preparers that utilized this practice in 2004 for the sewage sludge from the TWTDS above	Quantity of biosolids produced by separate preparers, that was used or disposed of by this practice in 2004 (dry tons)	If not tracked by tons , estimate <i>percentage</i> produced by separate preparers, used or disposed by this practice in 2004			
DISPOSAL:	-----	-----	-----			
Placed in MSW* landfill (include non-258 landfills here, if applicable, and explain)						
Placed in surface disposal site (dedicated land disposal, monofill)						
Landfill daily cover						
Incinerated (thermal oxidation)						
BENEFICIAL USE:						
Class A* agricultural land application						
Class B* agricultural land application						
Forestry land application (Class A or B)						
Reclamation of mine land, landfill, gravel pit, or other disturbed land (Class A or B)						
Class A, EQ* product for public distribution (e.g. compost, heat dried; bagged or bulk)						
OTHER:						
Long-term storage/stockpiling of <i>treated</i> biosolids (e.g. <i>don't include</i> sludge in lagoons)						
Beneficial use of sludge incinerator ash						

Trends – Current (May 2006)

25. Indicate which, if any, legislative, regulatory, or other activity is happening or is imminent in your state and what its impacts are expected to be:

- Development of, or changes to, *state biosolids regulations*. This will likely:
 - expand beneficial use have no significant affect on beneficial use reduce beneficial use
- Development of, or changes to, *local (county, municipal) biosolids ordinances/regulations*. This will likely:
 - expand beneficial use have no significant affect on beneficial use reduce beneficial use
- Change to *state statute(s)* regarding biosolids management. This will likely:
 - expand beneficial use have no significant affect on beneficial use reduce beneficial use
- Other activity(ies)*** within your state regarding biosolids management (e.g. agricultural changes, public concern, etc.) This/these will likely:
 - expand beneficial use have no significant affect on beneficial use reduce beneficial usePlease specify these other activities: _____

26. As of today, are local units of government (towns, cities, counties) allowed to enact ordinances that are more restrictive than state law regarding biosolids use and/or disposal? Yes No If you want, please explain: _____

How many have adopted more restrictive ordinances? Number of cities and towns: _____ Number of counties: _____

Is this number: Increasing? Decreasing? Remaining the same?

27. Overall, is the beneficial use of biosolids increasing in your state?

Yes No

Please explain why or why not: _____

28. What do you consider to be the top three pressures *currently* on biosolids recycling programs in your state? (Please add others if there are more than three!)

1. _____
2. _____
3. _____

Biosolids Testing – Current (May 2006)

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

TESTING	...for all sewage sludge or biosolids		...only for biosolids being beneficially used as fertilizers and soil amendments		Frequency of testing (indicate how often testing must be done for each parameter):		If frequency depends on wastewater flow or amount of biosolids used or disposed of, please explain:
	Yes	No	Yes	No	In accordance with Part 503 requirements	Other... Please specify:	
Part 503 metals (As, Cu, Hg, etc.)							
Other metals (boron, silver...)							
Dioxins/furans							
PCBs							
Priority pollutants							
Other organic compounds (e.g. PDBEs, pharmaceutical)							
Radioactive isotopes (alpha, beta, Ra 224, etc.)							
Nutrients* (NPK)							If testing is required for non-503 constituents, any organic compounds, and/or radioactive isotopes, please attach lists of all required analytes (e.g. copies of pages or tables from state regulations).
Pathogen reduction (Class A or B)							
Vector attraction reduction (VAR)							

30. **Current reporting requirements:** 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 this data stored by the state?		Is data compiled by the state in reports or summaries? If so, please attach.		
	Yes	No	In accordance with Part 503 requirements	Other... Please specify:	Paper	Electronic	No	Yes	I have attached the following report(s) or summary(ies) or they are available at the following web address:
The amounts of biosolids/ sewage sludge used or disposed									
Part 503 metals (As, etc.)									
Other metals (boron, silver, etc.)									
Dioxins/furans									
PCBs									
Priority pollutants									
Other organic compounds (e.g. PDBEs, PPCPs.)									
Radioactive isotopes (alpha, beta, Ra 224...)									
Nutrients (N, P, K)									
Cumulative Pollutant Loading Rates (CPLR)*									
How biosolids achieve Class A or Class B									
How biosolids achieve Vector Attraction (VAR)									
Solids stabilization processes used									
Other biosolids treatments									
End use/disposal practice									

If your state has summarized or reported data on metals, organic chemical compounds, or other pollutants* in biosolids - or other data (for 2004), please send a copy with this survey.

31. Biosolids Treatment Practices and Quantities.

Estimate the following, *as best you can*:

The following data are in [] dry metric tons [] dry U. S. tons.

	Estimated number of TWTDS in your state with this technology	Estimated quantity of biosolids produced in your state by each treatment process (dry tons - indicate above if metric or U.S.)
<i>Digestion</i>	-----	-----
Aerobic digestion		
Anaerobic digestion to Class B		
ATAD (auto thermal aerobic digestion)		
TPAD (temperature phased anaerobic digestion)		
Other digestion (please specify: _____)		
<i>Other stabilization processes</i>	-----	-----
Alkaline/lime stabilization (Class B)		
Advanced alkaline/lime stabilization (Class A)		
Thermal (heat treatment/drying – Class A)		
Composting (Class A)		
Composting (Class B)		
Long-term accumulation or storage (in lagoon, reed bed, etc.)		
Other stabilization (please specify: _____)		
<i>Dewatering technologies</i>	-----	-----
Belt filter press		
Plate and frame press		
Screw press		
Centrifuge		
Vacuum filter		
Drying beds		
Other (please specify: _____)		

Septage Management – Current Information

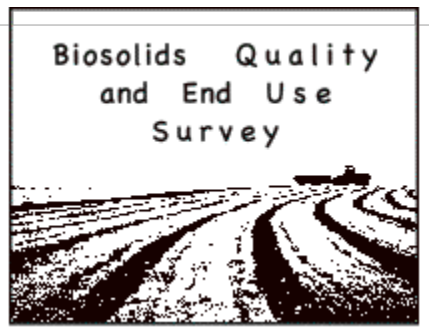
If your agency or bureau does not deal with septage, please indicate whom to contact for septage management information; skip #27 - 36.

Septage program contact name: _____ Contact phone number: _____

Contact email: _____ Agency/Department: _____

32. When were your state’s septage management regulations last updated formally? _____
33. As of today, how many full-time employees and full-time employee equivalents (FTEs) work in your state’s septage program? Include only the proportion of a person’s time spent on *septage*; i.e. one individual biosolids and septage coordinator may spend .7 FTE on biosolids and .3 FTE on septage; include *only* the septage amount here: _____
34. Estimate the number of septage haulers that are *based* in your state (they may do business in other states as well): _____
35. Can septage be land applied in your state? Yes No
If yes, what treatment is required prior to land application? Meet Part 503 Meet Part 503 and the following additional state requirements: _____
36. Does your state require POTWs (or all TWTDS) to accept septage? Yes No
37. How many TWTDS in your state accept septage? _____
38. Estimate the amount (percent hauled) of septage that is:
Land Applied: _____% Hauled to TWTDS: _____% Disposed in lagoons: _____% Composted: _____%
Sent to other septage-only treatment facility: _____% Other: _____% Specify this other use or disposal: _____
39. Does your state agency and the state’s TWTDS consider fats, oils, and grease (FOG) to be a significant issue? Yes No
40. Does your state regulate the use or disposal of brown grease (grease trap waste)? Yes No
If yes, under what rules (indicate all that apply): septage biosolids/sludge other (specify): _____
41. Does your state have a proactive program to collect fats, oils, and grease (FOG), keeping them out of the general wastewater flow, and using or disposing of them appropriately? Yes No
If yes, please describe this program: _____

----- **END OF SURVEY - THANK YOU FOR YOUR HELP!** -----



2006 U. S. National Biosolids Quality & End Use Survey

1. Welcome

Welcome to the National Biosolids Quality & End Use Survey! This is an ongoing effort to update information on the amount and quality of sewage sludge/biosolids used or disposed in the United States.

This voluntary survey is to be completed by any size U.S. wastewater treatment works treating domestic sewage (TWTDS) that used or disposed of sewage sludge/biosolids in 2006. Only one response per facility please. No private companies/industries that treat wastewater of which only a small proportion (<10%) is domestic sewage. All data should be for 2006.

PLEASE FOLLOW ALL DIRECTIONS CAREFULLY. FOR NUMERICAL ANSWERS, PLEASE PROVIDE YOUR BEST ESTIMATE AS ONE NUMBER (DON'T ENTER RANGES LIKE "2.5 - 3" AND DON'T USE ANY TEXT LIKE "APPROXIMATELY 3" OR "2.5 MGD" OR THE "%" SIGN OR EVEN COMMAS). IF YOU NEED TO EXPLAIN SOMETHING, YOU WILL HAVE A CHANCE AT THE END OF THE SURVEY - ON A PIECE OF PAPER, WRITE DOWN THE QUESTION NUMBER AND YOUR COMMENTS AND ENTER THEM WHEN YOU GET TO THE LAST QUESTION ("ADDITIONAL COMMENTS").

The survey has a total of ???????? questions and should take about 15 minutes to complete.

NOTE: IF YOU NEED TO LEAVE IN THE MIDDLE OF COMPLETING THE SURVEY, THAT'S OKAY. If you return, using the same computer, the data you entered already will appear and you can pick up where you left off. This also means you can go back in and correct something later, if you wish. HOWEVER, THIS ALSO MEANS THAT YOU CAN ONLY COMPLETE ONE SURVEY FROM ANY SINGLE COMPUTER - IF YOU HAVE MORE THAN ONE FACILITY TO REPORT ON, PLEASE CONTACT ned.beecher@nebiosolids.org.

Your survey responses will be kept CONFIDENTIAL and ANONYMOUS; they will be used only in combination with a large number of others to develop a final

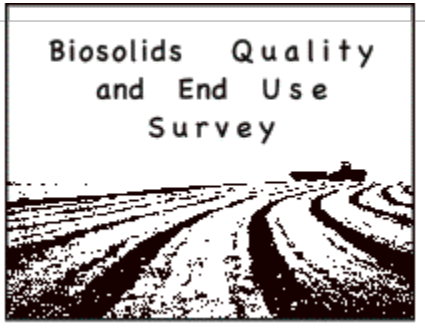
report. You or your facility will not be identified in any way in any public report.

This is a project of the New England Biosolids & Residuals Assoc. (NEBRA), BioCycle, Northwest Biosolids Management Assoc. (NBMA), and Wisconsin Dept. of Natural Resources. Initial funding has been provided, in large part, by a U.S. EPA Water Quality Cooperative Agreement (104(b)(3) grant.

The results from this survey, combined with data from state agencies, is helping create the best information ever on how sewage sludge/biosolids are managed in the U. S. See the NEBRA, BioCycle, and NBMA websites beginning in mid-April, 2007 for further details.

Thanks for participating!

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2006 U. S. National Biosolids Quality & End Use Survey

2. Facility Information

* 1. Enter your facility name.

* 2. State in which your TWTDS is located:

* 3. Average daily flow in 2004 (MGD). Enter just a number (your best estimate) - no ranges or text:

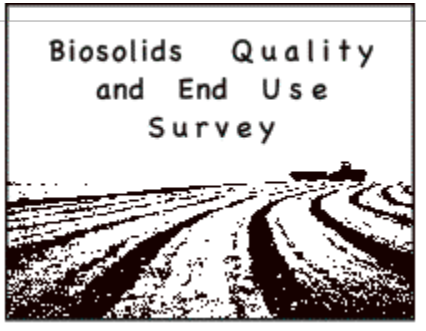
4. Permitted (or design) capacity (MGD). Enter just a number (your best estimate) - no ranges or text:

5. Estimate the volume of septage received at your facility in 2004 (gallons per year). Enter just a number (your best estimate) - no ranges or text:

* 6. What is the population served by your facility? Enter just a number (your best estimate) - no ranges or text:

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2006 U. S. National Biosolids Quality & End Use Survey

3. Biosolids Quality

7. Does your facility have an active industrial pretreatment program?

* 8. What was the final sewage sludge/biosolids **QUALITY** produced at your facility in 2004? Enter the percentage of all that apply and be sure they total 100. Provide just numbers (your best estimates) - no ranges or text (i.e., don't enter a % sign).

% Class A

% Class B

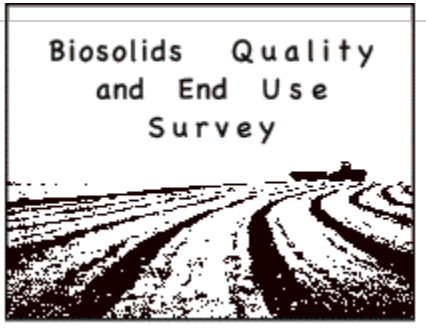
% Unstabilized or no data

% Other (please provide details at end of survey)

9. In 2004, did all of the solids from your facility meet EPA's pollutant concentration limits (high quality, Part 503 - Table 3)?

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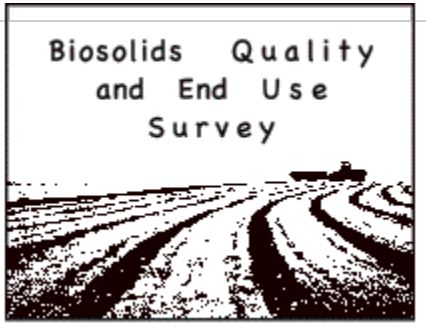
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4. Biosolids Quantity

*** 10. What was the total QUANTITY of sewage sludge/biosolids used or disposed by your facility in 2004? PLEASE FILL IN JUST ONE FORM OF MEASUREMENT. Put a zero in every other box; do not include any letters or the % sign.**

dry U.S. tons per year	<input type="text"/>
dry METRIC tons per year	<input type="text"/>
WET TONS per year AND...	<input type="text"/>
...average % solids	<input type="text"/>
CUBIC YARDS per year AND...	<input type="text"/>
...average % solids	<input type="text"/>
GALLONS per year AND...	<input type="text"/>
....average % solids	<input type="text"/>

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5. Biosolids End Use and/or Disposal

11. Please indicate the percentage(s) of how the sewage sludge/biosolids from your facility was beneficially used or disposed (i.e 45 agricultural land application and 55 forestry land application). Your numbers should add to 100 - if they don't please explain at end of survey. Enter just numbers (your best estimate) - no ranges or text (i.e., don't enter the % sign).

- a. agricultural land application (Class A or B)
- b. forestry land application (Class A or B)
- c. reclamation of mine land, gravel pit, other disturbed land (Class A or B)
- d. Class A EQ product public distribution
- e. long-term storage/stockpiling
- f. municipal solid waste landfill (including as daily or final cover)
- g. surface disposal (dedicated site, monofill)
- h. incineration (thermal oxidation)
- i. haul solids to another wastewater treatment facility (POTW, TWTDS)

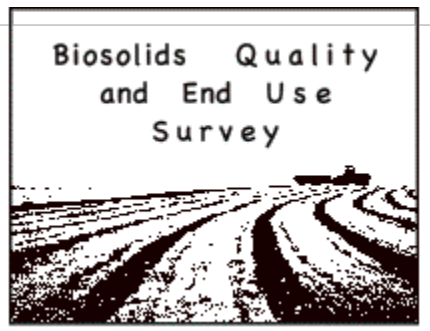
12. Please indicate the percentage of the following. Enter just numbers (your best estimate) - no ranges or text (i.e., don't enter the % sign):

% of sewage sludge/biosolids managed by facility staff

% of sewage sludge/biosolids managed by independent contractor

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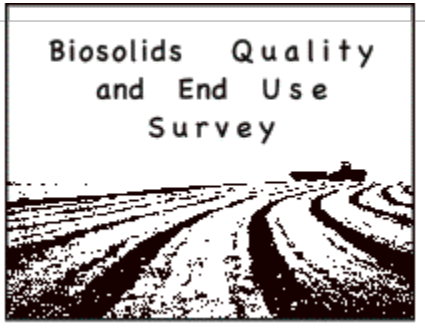
6. Biosolids Pressures

13. What do you consider to be the top three pressures on biosolids recycling programs in your state? Read choices carefully and choose what fits best. Some categories, such as "agricultural issues," have more than one choice.

	1	2	3
REGULATIONS ON BENEFICIAL USE – lack of regulatory support for beneficial use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TRADITION – it's difficult to change from long-standing practices or existing and known infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AGRICULTURAL ISSUES - declining farmland due to less agriculture or due to development, sprawl, seasonal restrictions, or competition with manures, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OTHER	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COST – disposal options are least expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AGRICULTURAL ISSUES - soil compaction, difficulty with timing, stockpiling, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PUBLIC INVOLVEMENT- concerns of neighbors, environmental groups, and others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENVIRONMENTAL ISSUES - impacts to soils, organisms, public health, contaminants (pathogens, metals, organic chemicals, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
REGULATIONS ON BENEFICIAL USE – restrictive local ordinances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COST – beneficial use options are least expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENVIRONMENTAL ISSUES - nutrient management, phosphorus (P), nitrogen (N)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NUISANCE ISSUES – odors, truck traffic, dust, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
REGULATIONS ON DISPOSAL – strict regulations or fees on disposal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
REGULATIONS ON BENEFICIAL USE– strict EPA and/or state regulation and enforcement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. If 'Other' selected above, please explain here:

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7. Biosolids Treatment

15. Digestion and related technology(ies) used at your facility (check all that apply):

- aerobic digestion
- ATAD (auto thermophilic aerobic digestion)
- anaerobic digestion (mesophilic, thermophilic, TPAD, etc.)
- ___biogas (methane) heat recovery
- ___biogas (methane) electricity generation
- none or N/A
- Other digestion (please specify)

16. Other stabilization processes used at your facility (check all that apply):

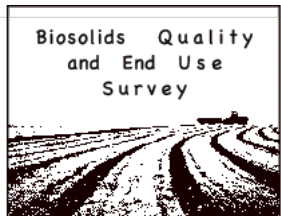
- Lime stabilization (Class B)
- Advanced alkaline/lime stabilization (Class A)
- Thermal (heat treatment/drying - Class A)
- Composting (Class A)
- Composting (Class B)
- Long-term accumulation or storage (lagoon, reed bed, Imhoff tank, etc.)
- none or N/A
- Other stabilization (please specify)

17. Dewatering/thickening technology(ies) used at your facility (check all that apply):

- belt filter press
- plate and frame press
- screw press
- centrifuge
- vacuum filter

- drying beds
- gravity belt thickener
- gravity thickener tanks
- dissolved air flotation (DAF) units
- none or N/A
- Other dewatering/thickening (please specify)

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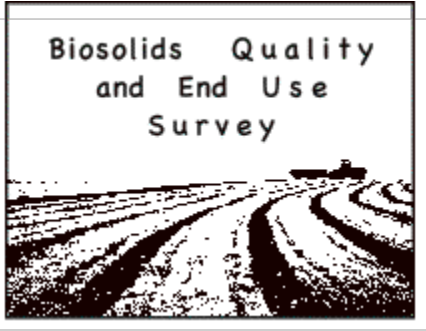
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8. Biosolids Testing

18. Indicate which of the following constituents in your facility's biosolids are tested for on a regular basis (please fill in every blank)

	Are you required to test for this?	If not required, do you test for this voluntarily?	H
Part 503 metals (As, Cu, Hg...)	<input type="checkbox"/>	<input type="checkbox"/>	
Other metals (boron, silver...)	<input type="checkbox"/>	<input type="checkbox"/>	
Dioxins/furans	<input type="checkbox"/>	<input type="checkbox"/>	
PCBs	<input type="checkbox"/>	<input type="checkbox"/>	
Priority pollutants	<input type="checkbox"/>	<input type="checkbox"/>	
Other organic compounds (PBDEs, pharmaceuticals...)	<input type="checkbox"/>	<input type="checkbox"/>	
Radioactive isotopes (alpha, beta, Ra 224...)	<input type="checkbox"/>	<input type="checkbox"/>	
Nutrients (NPK)	<input type="checkbox"/>	<input type="checkbox"/>	

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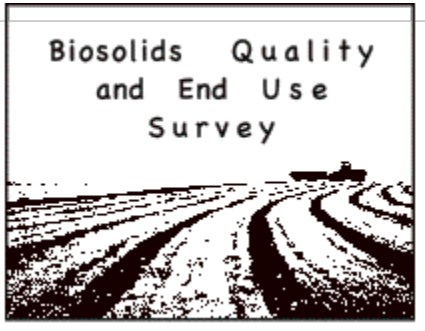
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9. Additional Comments

19. Additional comments: please add further explanations or clarifications here. For comments that apply to a specific question, please begin with the question number.

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10. Thank You

20. We ask for your contact information to help us assure only one response from each facility and to allow us to contact you if we have any questions. Your contact information will not be shared with anyone. Completing this information is optional.

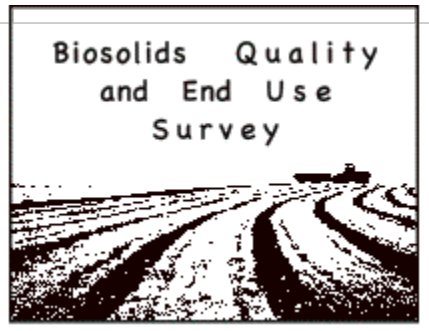
Your Name	<input type="text"/>
Email	<input type="text"/>
Phone number	<input type="text"/>

*** 21. Unless you provide permission below, your survey responses will be kept confidential and anonymous; they will be used only in combination with a large number of others to develop a final report, and you or your facility will not be identified in any way in any public report.**

However, by answering "yes" below, you can provide the survey authors the option of including in public reports your specific facility's name and the associated information that you have provided in this survey. For example, this will allow the survey authors to provide short descriptions that highlight the variety of biosolids management programs around the U.S. (If you have a photo of your program or other information that you would like to have considered for inclusion in the final report, email it to info@nebiosolids.org.)

I give permission for the survey authors to include in public reports my specific facility's name and the associated information that I have provided in this survey:

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2006 U. S. National Biosolids Quality & End Use Survey

11. End

Thank you for completing the National Biosolids Quality & End Use Survey! A final report, including results and analysis from this survey, will be available from NEBRA (www.nebiosolids.org), NBMA (www.nwbiosolids.org), and BioCycle (www.jgpress.com/biocycle.htm) by spring of 2007. For more information contact Ned Beecher, Executive Director of NEBRA, at ned.beecher@nebiosolids.org.

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APPENDIX B : Additional Data on State Legal and Regulatory Structures

B-1. State regulation updates

B-2. State mechanisms used to regulate end use / disposal and permitting of land application sites

B-3. Legal liability

B-4. Different Class B biosolids to one site

B-5. Allowing more restrictive local ordinances

B-6. Who must report biosolids data to state?

B-7. State regulatory requirements for biosolids testing

B-8. State regulatory requirements for biosolids reporting

B-9. Additional indicators of state regulatory activity

B-10. Top 3 pressures on biosolids recycling

B-1. State regulation updates - When were state biosolids and septage regulations last updated formally?

State	When were the state biosolids management regulations last updated?	When were septage management regulations last formally updated?	Comments about septage regulations
Alabama	No state biosolids regulation	October 19, 1994	
Alaska	August 2003	Data not provided	
Arizona	Data not provided	Data not provided	
Arkansas	No state biosolids regulation	No formal state septage regulations	AR has adopted Part 503 regulations for septage
California	July 2004	No formal state septage regulations	Regulated pursuant to CA Water Code
Colorado	June 2003	No formal state septage regulations	State involvement limited; some counties have programs.
Connecticut	No state biosolids regulation	no formal state septage regulations	Rely on Part 503
Delaware	October/1999	1988	
Florida	March 1998	May 24, 2004	
Georgia	July 1996	1994	
Hawaii	December 2004	December 2004	
Idaho	Data not provided	1991	
Illinois	January 1984	2003	
Indiana	August 2003	July 2002	
Iowa	August 1994	August 1994	
Kansas	No state biosolids regulation	No formal state septage regulations	Relies on Part 503
Kentucky	June 1992	August 1996	
Louisiana	2007	No formal state septage regulations	Regs are being developed so that all domestic septage and grease removed from food service facilities when the grease is mixed with sewage sludge will be regulated under the sewage sludge regulations by Dept. of Environmental Quality.
Maine	December 1999	1996	
Maryland	2000	No formal state septage regulations	
Massachusetts	September 1992	April 2006	Regulated through Title V
Michigan	November 1999	1994	Past 117 is the law - septage waste services of the environmental act - this law acts like rules, is a fee-based program, licenses vehicles, permits land application sites.
Minnesota	April 1997	No formal state septage regulations	MN does not have regulations, just guidelines; enforcement is taken on septage transport and egregious land application practices
Mississippi	April 2005	2002	

Missouri	1982	Data not provided	
Montana	No state biosolids regulation	May 25, 2001	
Nebraska	No state biosolids regulation	Data not provided	
Nevada	No state biosolids regulation	No formal state septage regulations	Only 5% of the state's population rely on septic systems
New Hampshire	March 1999	October, 2005	
New Jersey	1997	1997	
New Mexico	No state biosolids regulation	No formal state septage regulations	Septage is addressed in groundwater discharge rules through permits - these were adopted in 1977, with later updates to how the program is run
New York	March 2003	March 2003	
North Carolina	1993	1995	
North Dakota	Data not provided	1979	
Ohio	April 2002	January 2007	
Oklahoma	June 2005	2001	
Oregon	July 1995	July 1995	
Pennsylvania	January 1997	January 1997	
Rhode Island	April 1997	No formal state septage regulations	
South Carolina	December 2003	December 2003	
South Dakota	October 2001	No formal state program or regulation.	
Tennessee	June 2001	January 2006	Updated annually
Texas	October 20, 2005	1995	
Utah	October 2001	1985	
Vermont	February 1989	February 1989	
Virginia	2003	No formal state septage regulations	
Washington	2007	February 1998	
West Virginia	June 2000	2000	
Wisconsin	January 1, 1996	January 1, 1999	
Wyoming	No state biosolids regulation	No formal state septage regulations	

B-2. State mechanisms used to regulate end use / disposal and permitting of land application sites

States use a variety of methods to regulate end use and disposal of biosolids. Some states, such as Montana, use more than one mechanism. The majority of states (60%) use a general NPDES permit, a specific NPDES permit, or the combination of NPDES permits and other permits. Alabama, Kansas, and Wyoming rely on their USEPA regions and do not have a state mechanism. Twenty-seven states use the same permitting mechanism for land application sites *and* overall end use or disposal.

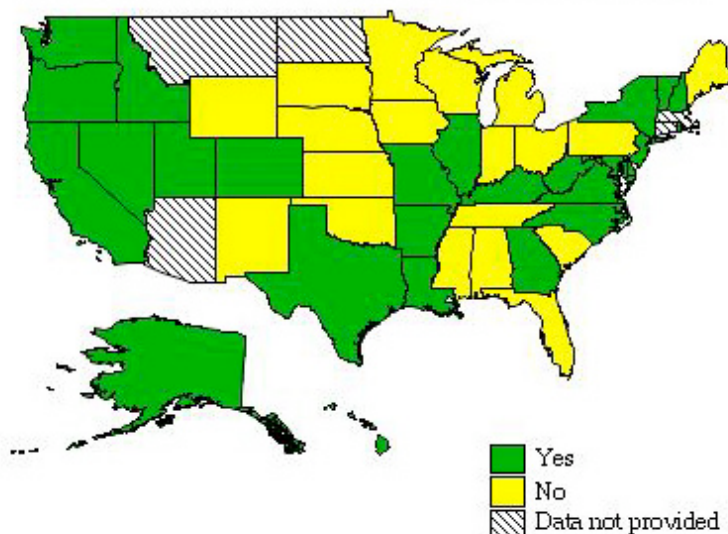
State	What mechanism does state use to regulate biosolids end use & disposal?	How are land application sites permitted?
Alabama	No state mechanism	No state mechanism
Alaska	Solid waste license/permit	Under the same system
Arizona	Data not provided	Data not provided
Arkansas	Specific NPDES type permit & solid waste license/permit	Issued as separate site-specific permits
California	Solid waste license/permit & "permit" issued pursuant to California Water Code (CWC)	Issued as a separate general permit, issued as separate site-specific permits, & "permit" issued pursuant to California Water Code (CWC)
Colorado	General NPDES type permit	Issued as separate site-specific permits
Connecticut	Specific NPDES type permit	No land application in state
Delaware	Specific NPDES type permit	Under the same system
Florida	Specific NPDES type permit	Under the same system
Georgia	Specific NPDES type permit & solid waste license/permit	Under the same system & NPDES a LAs permit
Hawaii	Wastewater permit	Under the same system
Idaho	Specific NPDES type permit	State regulation requires approved sludge management plan or site-by-site approvals (letter of approval, not permit)
Illinois	State operating permits	Under the same system
Indiana	Solid waste license/permit	Under the same system & each TWTDS that land applies biosolids must obtain a land application permit, all sites are approved under that permit either in a site-specific permit or a nonsite-specific permit
Iowa	General NPDES type permit	Under the same system
Kansas	No state mechanism	No state mechanism
Kentucky	Solid waste license/permit	Data not provided
Louisiana	Sewage sludge (biosolids) use or disposal permits	Under the same system
Maine	Solid waste license/permit	Issued as a separate general permit & issued as separate site-specific permits
Maryland	Solid waste license/permit	Issued as separate site-specific permits
Massachusetts	Specific NPDES type permit	Issued as separate site-specific permits
Michigan	General & specific NPDES type permit	Under the same system
Minnesota	Specific NPDES type permit	Issued as separate site-specific permits
Mississippi	Solid waste license/permit	Under the same system
Missouri	Specific NPDES type permit	Under the same system
Montana	General & specific NPDES type permit, solid waste license/permit, & EPA region 8 general permit	Under the same system

State	What mechanism does state use to regulate biosolids end use & disposal?	How are land application sites permitted?
Nebraska	Specific NPDES type permit	Site-specific review only; no formal permit
Nevada	General NPDES type permit & ground water individual permit	Data not provided
New Hampshire	NH Sludge Management Rules / Issuance of Sludge Quality Certification and Site Permits as applicable	Issued as separate site-specific permits
New Jersey	General & specific NPDES type permit, solid waste license/permit, & air permit	Under the same system (NJPDES permit)
New Mexico	General NPDES type permit	Under the same system
New York	Solid waste license/permit	Under the same system
North Carolina	Individual state permit	Under the same system
North Dakota	Data not provided	Data not provided
Ohio	Specific NPDES type permit	Under the same system
Oklahoma	Specific NPDES type permit	Under the same system
Oregon	Specific NPDES type permit & NPDES WPCF permits issued to TWTDS	Issued as separate site-specific permits/ authorization letter
Pennsylvania	land application is permitted under a general permit issued separate from a TWTDS NPDES permit	In most cases, no site permit is issued. Biosolids sites are "registered" under a TWTDS General Permit. Mine reclamation activities are handled as an amendment to a mining permit.
Rhode Island	Specific NPDES type permit	Issued as separate site-specific permits
South Carolina	Specific NPDES type permit & sludge supplement to NPDES permit	Under the same system
South Dakota	Specific NPDES type permit	Under the same system
Tennessee	General NPDES type permit	Issued as separate site-specific permits
Texas	Specific NPDES type permit fro disposal only	Issued as separate site-specific permits
Utah	Specific NPDES type permit	Under the same system
Vermont	Solid waste license/permit	Under the same system
Virginia	Specific NPDES type permit, solid waste license/permit, air permit for incineration emissions, & biosolids use operation permit issued to contractors by VDH	Under the same system
Washington	Solid waste license/permit	Under the same system & through a general permit and site-specific approval
West Virginia	General & specific NPDES type permit	Under the same system
Wisconsin	Specific NPDES type permit	Under the same system
Wyoming	No state mechanism	No state mechanism

B-3. Legal liability

Nineteen states do not allow the biosolids generator to pass legal liability to the landowner or land applier when biosolids are land applied. Although 26 states do allow biosolids generators to pass legal liability over to the landowner or land applier, only half of these states have generators that are actually doing this.

Does your state allow land appliers or landowners to become the holder of legal liability for biosolids end use?



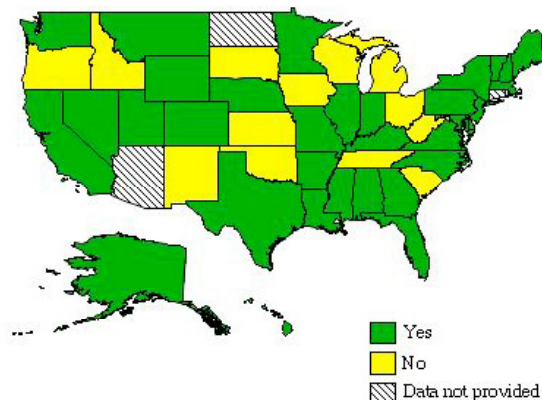
Does your state allow land appliers and/or land-owners (who are not the TWTDS generator) to become holder of legal liability for biosolids end use?

Yes	Number of instances in which this occurs	No	Data not provided
26 States 52%	153	19 States 38%	5 States 10%
Alaska	0	Alabama	Arizona
Arkansas	0	Florida	Connecticut*
California	15	Indiana	Massachusetts
Colorado	2	Iowa	Montana
Delaware	3	Kansas	North Dakota
Georgia	Data not provided	Maine	
Hawaii	0	Michigan	*no land application in CT
Idaho	Data not provided	Minnesota	
Illinois	11	Mississippi	
Kentucky	18	Nebraska	
Louisiana	1	New Mexico	
Maryland	5	Ohio	
Missouri	0	Oklahoma	
Nevada	4	Pennsylvania	
New Hampshire	22	South Carolina	
New Jersey	2	South Dakota	
New York	5	Tennessee	
North Carolina	0	Wisconsin	
Oregon	0	Wyoming	
Rhode Island	0		
Texas	60		
Utah	0		
Vermont	0		
Virginia	0		
Washington	5		
West Virginia	0		

B-4. Different Class B biosolids to one site

Thirty-three states allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same year. Although this is a large number of states, only eleven states gave data regarding the number of sites on which this practice occurs. 12 of the 33 states that answered ‘yes’ did not provide information on the number of sites, and 10 states reported that TWTDS are allowed to apply in this way, but it is not happening at any sites.

Does your state allow Class B biosolids from more than one TWTDS to be land applied on the same site in the same crop year?

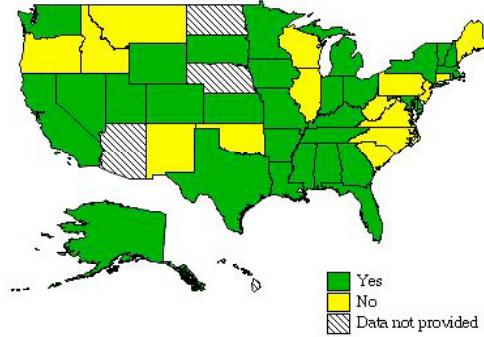


Does your state allow *Class B* biosolids from more than one TWTDS to be land applied on the same site in the same crop year?

Yes	Number of sites on which this occurs	No	Data not provided
33 States 66%	531	13 States 26%	4 States 8%
Alabama	Data not provided	Idaho	Arizona
Alaska	0	Iowa	Connecticut*
Arkansas	Data not provided	Kansas	North Dakota
California	15	Michigan	Rhode Island*
Colorado	Data not provided	New Mexico	
Delaware	Data not provided	Ohio	
Florida	230	Oklahoma	
Georgia	0	Oregon	
Hawaii	1	South Carolina	
Illinois	Data not provided	South Dakota	
Indiana	Data not provided	Tennessee	
Kentucky	0	West Virginia	
Louisiana	13	Wisconsin	
Maine	0		
Maryland	Data not provided		*no land application in these states
Massachusetts	0		
Minnesota	0		
Mississippi	2		
Missouri	Data not provided		
Montana	Data not provided		
Nebraska	0		
Nevada	2		
New Hampshire	27		
New Jersey	2		
New York	4		
North Carolina	Data not provided		
Pennsylvania	Data not provided		
Texas	35		
Utah	Data not provided		
Vermont	0		
Virginia	200		
Washington	0		
Wyoming	0		

B-5. Allowing more restrictive local ordinances

As of today, are local governments allowed to enact ordinances that are more restrictive than state law?



Are local units of government (towns, cities, counties) allowed to enact ordinances that are more restrictive than state law regarding biosolids use and/or disposal?

Yes	# of cities/ towns	# of counties	No	Data not provided
31 States			15 States	4 States
62%			30%	8%
Alabama	0	1	Connecticut	Arizona
Alaska	0	0	Idaho	Hawaii
Arkansas	0	0	Illinois	Nebraska
California	0	30	Maine*	North Dakota
Colorado	0	6	Montana	
Delaware	0	3	New Jersey	
Florida	0	23	New Mexico	
Georgia	0	0	North Carolina	
Indiana	0	0	Oklahoma	
Iowa	0	1	Oregon	
Kansas	0	0	Pennsylvania*	
Kentucky	0	6	South Carolina	
Louisiana	0	0	Virginia*	
Maryland	0	0	West Virginia	
Massachusetts	3	0	Wisconsin	
Michigan	1	0		
Minnesota	10	2		
Mississippi	0	0		
Missouri	0	0		
Nevada	0	1		
New Hampshire	40	0		
New York	0	0		
Ohio	0	0		
Rhode Island	0	0		
South Dakota	0	0		
Tennessee	0	0		
Texas	0	0		
Utah	0	0		
Vermont	0	0		
Washington	0	1		
Wyoming	0	0		

*ME-5 towns have ordinances that are likely incompatible with state law.

* PA-6 towns and 1 county have ordinances that are likely incompatible with state law.

* VA-2 towns and 1 county have ordinances that are likely incompatible with state law.

B-6. Who must report biosolids data to state?

20 States require majors, minors, and sludge only processing facilities to report biosolids information and data. It should be noted that TWTDS and biosolids preparers are required to report annually to USEPA (unless the state in which it operates is delegated).

From whom does your state require reporting of biosolids information and data?

Majors and minors and sludge-only processing facilities	Major and minor TWTDS	Only major TWTDS (>1 MGD)	Major TWTDS and sludge-only processing facilities	Sludge-only processing facilities	6-Data not provided
20 States 40%	14 States 28%	6 States 12%	2 States 4%	4 States 8%	4 States 8%
California	Arkansas	Alabama	Virginia	Alaska	Arizona
Colorado	Georgia	Idaho	Wyoming	Massachusetts	Connecticut
Delaware	Illinois	Iowa		Mississippi	Montana
Florida	Kansas	Nebraska		New York	North Dakota
Hawaii	Maryland	New Mexico			
Indiana	Michigan	Oklahoma			
Kentucky	Minnesota				
Louisiana	New Hampshire				
Maine	Oregon				
Missouri	South Dakota				
Nevada	Texas				
New Jersey	Utah				
North Carolina	Vermont				
Ohio	West Virginia				
Pennsylvania					
Rhode Island					
South Carolina					
Tennessee					
Washington					
Wisconsin					

B-7. STATE REGULATORY REQUIREMENTS FOR BIOSOLIDS TESTING

(from May 2006 survey of state biosolids coordinators, Question 29: “Current testing requirements: for each of the following constituents in biosolids, indicate if testing is required by your state....”)

	Number of states that require testing for all sewage sludge or biosolids	Number of states that require testing for biosolids being beneficially used as fertilizers and soil amendments
Part 503 metals (As, Cu, Hg, etc.)	16	41
Other metals (boron, silver...)	5	10
Dioxins/furans	0	4
PCBs	9	15
Priority pollutants	2	6
Other organic compounds (e.g. PDBEs, pharmaceuticals)	1	3
Radioactive isotopes (alpha, beta, Ra 224, etc.)	1	2
Nutrients (NPK)	11	41
Pathogen reduction (Class A or B)	10	37
Vector attraction reduction (VAR)	10	36

MN - Tests for PCBs in any sludge that is derived from old long-term storage ponds.

WA – For beneficially used biosolids, tests required only for N, not for P and K (nutrients).

Eight states provided no data for this table – AL, AZ, AR, CO, ID, MD, ND, NE.

B-8. STATE REGULATORY REQUIREMENTS FOR BIOSOLIDS REPORTING

(from May 2006 survey of state biosolids coordinators, Question 30: “Current reporting requirements: for each of the following, indicate what TWTDS and/or biosolids preparers must report to the state....”)

	Number of states that require reporting	Number of states that store the data electronically*	Number of states that store the data in paper form*
The amounts of biosolids/ sewage sludge used or disposed	36	18	21
Part 503 metals (As, etc.)	37	15	29
Other metals (boron, silver, etc.)	10	9	5
Dioxins/furans	5	3	4
PCBs	14	11	7
Priority pollutants	6	4	4
Other organic compounds (e.g. PDBEs, PPCPs,)	5	6	2
Radioactive isotopes (alpha, beta, Ra 224...)	2	1	1
Nutrients (N, P, K)	32	23	12
Cumulative Pollutant Loading Rates (CPLR)*	26	18	7
How biosolids achieve Class A or Class B	32	26	11
How biosolids achieve Vector Attraction (VAR)	33	27	10
Solids stabilization processes used	16	12	8
Other biosolids treatments	10	7	3
End use/disposal practice	34	12	25

Notes:

* Some states store data in both paper and electronic formats.

Federal 40 CFR Part 503 requires TWTDS to report some of these parameters annually.

NY- Reporting is only required for POTWs that land apply / use beneficial use options.

IN – Class A & B VAR and CPLR data collected as part of permit, but is not submitted to state.

Ten states provided no data for this table – AL, AR, AZ, CO, ID, MA, MD, MT, NE, ND.

B-9. Additional indicators of state regulatory activity

Several questions in the survey of state biosolids coordinators addressed current, “cutting edge” biosolids land application management issues, such as management of phosphorus and other nutrients.

The responses to these questions, combined in the table on the next page, provide a further glimpse of state regulatory involvement in biosolids management and show to what extent states go above and beyond Part 503 requirements.

State	Basis of agronomic loading rate for land application			State requires formal nutrient management plans for land applied biosolids (nutrients are controlled some in all states by agronomic loading rate)	State biosolids program manages or controls the application of phosphorus in biosolids	State requires additional monitoring at Class B land application sites	Who is required to report biosolids data to the state? (many states require more than one of the following)			In what ways are the state's biosolids regulations more restrictive than 40 CFR Part 503?			These states reported that they require the following additional oversight, certification, odor control, or pathogen control actions for biosolids land application programs			
	Nitrogen (required by federal Part 503)	Phosphorus	Other*				Major Facilities (>1 MGD)	Minor Facilities	Sludge-only processing facilities	Management practices	Pathogen reduction standards	Pollutant limits	independent inspectors or monitors at land application sites	Certification of biosolids land appliers who manage or implement land application	Other requirements or actions to control odors at land application sites	Testing of Class A biosolids for the presence of pathogens if three weeks or more have elapsed since
Number of states	50	9	5	11	27	28	42	34	26	37	4	16	5	9	19	13
Alabama	X						X									
Alaska	X								X						X	
Arizona	X				X											
Arkansas	X				X		X	X		X			X			
California	X		X	X		X	X	X	X	X		X		X		
Colorado	X					X	X	X	X	X			X			
Connecticut	X									X						
Delaware	X			X	X	X	X	X	X	X			X	X	X	X
Florida	X	X			X		X	X	X	X					X	
Georgia	X					X	X	X		X						
Hawaii	X			X			X	X	X	X	X	X				
Idaho	X						X									
Illinois	X	X			X		X	X		X		X			X	
Indiana	X					X	X	X	X	X		X				
Iowa	X						X			X		X		X		
Kansas	X						X	X						X		
Kentucky	X				X	X	X	X	X	X		X		X	X	
Louisiana	X			X		X	X	X	X	X	X			X	X	X
Maine	X	X		X	X	X	X	X	X	X		X		X		
Maryland	X		X	X	X	X	X	X	X	X		X	X	X		
Massachusetts	X				X	X	X	X	X	X		X	X	X		X
Michigan	X	X			X		X	X		X						
Minnesota	X				X	X	X	X		X				X		
Mississippi	X				X	X				X						
Missouri	X				X		X	X								
Montana	X				X											
Nebraska	X	X	X		X	X	X			X						
Nevada	X					X	X	X	X							
New Hampshire	X			X	X	X	X	X	X	X	X	X	X			
New Jersey	X	X	X	X	X	X	X	X	X	X					X	
New Mexico	X					X										
New York	X				X	X			X	X		X			X	X
North Carolina	X					X	X	X	X	X				X		
North Dakota	X															
Ohio	X				X	X	X	X	X	X					X	X
Oklahoma	X	X			X	X	X	X		X						
Oregon	X					X	X	X		X						X**
Pennsylvania	X						X	X	X	X		X		X	X	X
Rhode Island	X			X			X	X	X	X		X				X
South Carolina	X					X	X	X	X	X					X	
South Dakota	X	X			X	X	X	X		X						
Tennessee	X						X	X	X	X						
Texas	X			X	X	X	X	X		X					X	X
Utah	X				X		X	X								
Vermont	X				X	X	X	X		X	X	X			X	X
Virginia	X	X		X	X	X	X	X	X	X					X	
Washington	X					X	X	X	X			X				X**
West Virginia	X					X	X	X		X		X				X
Wisconsin	X				X	X	X	X	X	X			X	X	X	X
Wyoming	X						X		X							

*AR - P managed in "nutrient surplus" designated areas; CA - As required by site-specific conditions; MD - N and P based on 3 highest yields of 5 submitted by farmer; NE - Also based on levels of chlorides, metals
 NJ - Nitrogen, lime equivalency, or P-based; whichever is most limiting but have not yet implemented P-based)

** OR - policy, not regulation; WA - if still under control of generator

B-10. Top 3 pressures on biosolids recycling

“What do you consider to be the top three pressures currently on biosolids recycling programs in your state? (Please add others if there are more than three!)”

State	Number 1 pressure on biosolids recycling programs in state	Number 2 pressure on biosolids recycling programs in state	Number 3 pressure on biosolids recycling programs in state
Alaska	Agriculture is not a big business in Alaska, and may be declining.		
Arkansas	Nutrient surplus designated area limiting beneficial land application operations	Cost of producing EQ biosolids	
California	Absence of resources needed to fully implement a regulatory program - results in backlog of “permit” requests and threatens to compromise enforcement and compliance efforts	Restrictive ordinances and subsequent pending legal decisions delay or prohibit authorizations to discharge biosolids	
Connecticut	traditional disposal by incineration is prevalent - hard to change that practice	state has pretty much not developed regulations that permit beneficial uses	
Delaware	Over development and subsequent loss of Ag land	Competition for remaining Ag land with manure generators	P based Nutrient Management
Florida	Truck traffic, odors, (i.e. nuisance issues)	Public perceptions/county ordinances	Development, growth, loss of farms and remote areas 4) Nutrient issues, TMDLs (primarily phosphorous but also nitrogen and fecal)
Georgia	Public opposition (odors, fears regarding pathogens and health)	Regulatory hurdles for large-scale / regional facilities	Complexity in tracking + reporting, such as land application. 4.) Decrease in available farmland in metro areas or other suitable areas for composting.
Hawaii	EPA consent Decree		
Idaho	growth (see above)	ten years ago there was public involvement about Boise program which led to their dedicated farm	
Illinois	Loss of sites due to urban sprawl	Naturally occurring radium in sludge	Potential legislative requirement to apply sludge at Phosphorous rate rather than nitrogen rate
Indiana	Compaction on farm ground	Increase in development of agricultural ground to new home construction or industrial activity	Governmental regulations and oversight
Kansas	Public opposition		

Kentucky	State regulations	Cheap landfill disposal costs	Public acceptance (distant third, usually not a problem)
Louisiana	Public perception - odors, diseases	Lack of public education	Difficult to break away from traditional practices; 4) Need of more EPA support
Maine	concerns expressed by the public	stricter regulation of stockpiling and nutrient management	
Maryland	Over application rate cause for nutrient leaching	Odor	Contamination to the waters of the state and groundwater
Massachusetts	Public perception	Seasonal restriction	Cost
Michigan	Inexpensive landfill tipping fees	Competition for land from CAFOs	State per ton land application fee, no fee for landfilling and incineration
Minnesota	Probably competition for land due to huge livestock business	Perhaps sooner than later, phosphorus issues	
Mississippi	1) lack of necessary resources to seek the 503 delegations from the USEPA	2) making further changes to the state regulations for biosolids management 4) Creating a biosolids website	3) Generating an annual report on land application activities conducted in MS during CY2005 5) Public concern
Missouri	limited land base		
Montana	Neighbors	Neighbors	Neighbors
Nebraska	ND	ND	ND
Nevada	Hauling costs	Public perception	Development of agricultural lands
New Hampshire	Decreased public acceptance fomented by activists opposed to beneficial use and negative media coverage	Increased development pressure on farmland	Lack of technical response by EPA to address perceived risks from land application
New Jersey	Lack of available land / Development pressures (any site will be close to housing, so higher nuisance issues)	Already at a high level (66%) will be hard to sustain	Statutory and regulatory requirements
New Mexico	Cost	Convincing the public to take the sludge (public education)	High groundwater levels
New York	Landfill cost is relatively low	Increased scrutiny by the EPA	
North Carolina	Public health concerns - documentation that the Class B pathogen and vector requirements are protective		
Ohio	Many POTWs find that is cheaper to landfill than land apply their sludge	Neighbors who have issues with odors or perceived threats to water	Large factory farms have given nutrient application a "bad name" in Ohio
Oklahoma	Phosphorus	Odor	Scenic River Watershed
Oregon	Urban Sprawl - availability of land near cities for land application	Concerns with PPCP's, Emerging pollutants, ect	Perceived health risk with land application

Pennsylvania	Odors 4) Desire to increase local involvement / local regulation	Public Health Concerns (perception?) - chemical de jour, odor	Lack of current research on new chemicals entering biosolids and their potential health effects
Rhode Island	Availability of regional incineration facilities	Public Perception	Improper use of EQ biosolids by the public
South Carolina	Negative reaction from un-informed general public re biosolids land application in general	negative reaction from public re biosolids land application in SC from sources outside the state	Odor concerns during land application activities
South Dakota	Odor complaints		
Tennessee	Public Perception (human waste - NIMBY)	Odor - damage to property value and quality of life	TMDL's 4.) Poor terrain (karst) - concerns about direct contact with groundwater.
Texas	Public comment opportunity has increased	Application Fees (based on the amount of sludge proposed to be land applied at site)	Nutrient Management Plan info. required prior to approval 4) Amount of time it takes to issue a permit application
Utah	Odor	Cost	Space
Vermont	odors	increasing development/population density in rural areas	cost
Virginia	Claims of illness associated with biosolids land application activities	Overly conservative P-based nutrient management plans	Poor public perception resulting from biosolids odors
Washington	Public perception of risks	Increasing transportation costs	Low disposal costs in some counties
West Virginia	nuisance type complaints: odors, etc.	phosphorus issues	funding
Wisconsin	Concern that EPA will not be proactive in promoting biosolids beneficial recycling and retaining strong technical support and research on emerging issues.	Phosphorous issues (as mentioned above in #25)	Contact storage for biosolids and co-mingled waste. Since we require 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.
Wyoming	lack of population generating biosolids		

APPENDIX C

Additional Data: Incinerators, Septage

C-1. Number of operating incinerators in the U. S.

C-2. Septage Data:

- State Septage Regulation Updates, FTEs (full-time equivalents), and Haulers
- State Septage Management Requirements
- Estimated Percents of Septage Land Applied or Disposed by Other Means
- State Programs Addressing Fats, Oils, and Grease (FOG) Management

C-1. Number of operating incinerators in the U. S.

STATE	TYPE			Total
	Electric Arc Incinerators	Fluidized Bed Incinerators	Multiple Hearth Incinerators	
Alabama	0	0	0	0
Alaska	1	1	1	3
Arizona	0	0	0	0
California	0	0	4	4
Colorado	0	0	0	0
Connecticut	0	2	7	9
Delaware	0	0	0	0
Florida	0	0	0	0
Georgia	0	0	8	8
Hawaii	0	0	0	0
Idaho	0	0	0	0
Illinois	0	0	0	0
Indiana	0	0	4	4
Iowa	0	2	1	3
Kansas	0	2	0	2
Kentucky	0	0	0	0
Louisiana	0	1	1	2
Maine	0	0	0	0
Maryland	0	2	2	4
Massachusetts	0	2	4	6
Michigan	0	1	25	26
Minnesota	0	0	8	8
Mississippi	0	0	0	0
Missouri	0	2	13	15
Montana	0	0	0	0
Nebraska	0	0	0	0
Nevada	0	0	0	0
New Hampshire	0	1	0	1
New Jersey	0	11	8	19
New Mexico	0	0	0	0
New York	0	13	25	38
North Carolina	0	2	1	3
North Dakota	0	0	0	0
Ohio	0	1	28	29
Oklahoma	0	0	0	0
Oregon	0	0	0	0
Pennsylvania	0	5	8	13
Puerto Rico	0	0	1	1
Rhode Island	0	0	4	4
South Carolina	0	1	3	4
South Dakota	0	0	0	0
Tennessee	0	0	0	0
Texas	0	0	0	0
Utah	0	0	0	0
Vermont	0	0	0	0
Virginia	0	2	16	18
Washington	0	4	2	6
West Virginia	0	1	0	1
Wisconsin	0	0	3	3
Wyoming	0	0	0	0
TOTALS	1	56	177	234

Notes: Data generously provided by Bob Dominak/NACWA Biosolids Committee, May 2007. Compiled from databases prepared for U.S. EPA in the mid 1990s, NACWA, and Infilco Degremont (an incinerator manufacturer), with input from Ben Wester of Malcolm Pirnie and Al Baturay of Carson Associates Technical Services, and including direct contact via website or phone with some individual TWTDS. The current number of biosolids incinerators in service in the U.S. is likely slightly lower than in 2004: at least one has shut down and several multiple hearth units are being replaced with fluidized bed incinerators that have larger capacity.

State Septage Regulation Updates, FTEs (full-time equivalents), and Haulers

State	When were septage management regulations last formally updated?	Comments	How many full time employees work in state septage program	Number of septage haulers based in state
Alabama	October 19, 1994		1	316
Alaska	Data not provided		Data not provided	Data not provided
Arizona	Data not provided		Data not provided	Data not provided
Arkansas	No formal state septage regulations	AR has adopted Part 503 regulations for septage	0.3	181
California	No formal state septage regulations	Regulated pursuant to CA Water Code	0	785
Colorado	No formal state septage regulations	State involvement limited; some counties have programs.	0	Data not provided
Connecticut	no formal state septage regulations	Rely on Part 503	0	Data not provided
Delaware	1988		1	50
Florida	May 24, 2004		2.5	454
Georgia	1994		0.2	332
Hawaii	December 2004		0.25	65
Idaho	1991		0.1	86
Illinois	2003		1	723

State	When were septage management regulations last formally updated?	Comments	How many full time employees work in state septage program	Number of septage haulers based in state
Indiana	July 2002		1.5	350
Iowa	August 1994		0.125	Data not provided
Kansas	No formal state septage regulations	Relies on Part 503	0	210 (estimated)
Kentucky	August 1996		Data not provided	Data not provided
Louisiana	No formal state septage regulations	Regs are being developed so that all domestic septage and grease removed from food service facilities when the grease is mixed with sewage sludge will be regulated under the sewage sludge regulations by Dept. of Environmental Quality.	Data not provided	110 companies
Maine	1996		1	235
Maryland	No formal state septage regulations		0	Data not provided
Massachusetts	April 2006	Regulated through Title V	0	Data not provided
Michigan	1994	Past 117 is the law - septage waste services of the environmental act - this law acts like rules, is a fee-based program, licenses vehicles, permits land application sites.	3.5	465
Minnesota	No formal state septage regulations	MN does not have regulations, just guidelines; enforcement is taken on septage transport and egregious land application practices	0.1	424
Mississippi	2002		2	63
Missouri	Data not provided		0.01	50
Montana	May 25, 2001		0.3	142
Nebraska	Data not provided		Data not provided	Data not provided

State	When were septage management regulations last formally updated?	Comments	How many full time employees work in state septage program	Number of septage haulers based in state
Nevada	No formal state septage regulations	Only 5% of the state's population rely on septic systems	0.2	35
New Hampshire	October, 2005		2.5	150
New Jersey	1997		3	Data not provided
New Mexico	No formal state septage regulations	Septage is addressed in groundwater discharge rules through permits - these were adopted in 1977, with later updates to how the program is run	0	144
New York	March 2003		1	615
North Carolina	1995		5	500
North Dakota	1979		0.2	106
Ohio	January 2007		0.01	500
Oklahoma	2001		1	147
Oregon	July 1995		0.5	157
Pennsylvania	January 1997		2	537
Rhode Island	No formal state septage regulations		0	60
South Carolina	December 2003		0.1	240
South Dakota	No formal state program or regulation.		0	Data not provided

State	When were septage management regulations last formally updated?	Comments	How many full time employees work in state septage program	Number of septage haulers based in state
Tennessee	January 2006 (updated annually)	Updated annually	1	Data not provided
Texas	1995		2	683
Utah	1985		0.2	100
Vermont	February 1989		0.25	35
Virginia	No formal state septage regulations		0.05, plus county staff	Data not provided
Washington	February 1998		1.1	Data not provided
West Virginia	2000		0.6	125
Wisconsin	January 1, 1999		2.1	495
Wyoming	No formal state septage regulations		0	Data not provided

Notes regarding FTEs:

FL-maybe 2 or 3 at county health offices

IL-assisted by local health depts for complaints and enforcement

TN-septage is mostly dealt with at the county level

VA-plus county staff

State Septage Management Requirements

State	Can septage be land applied in state	Can be land applied if it meets 40 CFR Part 503 only	Can be land applied if it meets 40 CFR Part 503 and additional state requirements	Additional state requirement	Does state require TWTDS to accept septage	How many TWTDS accept septage
Alabama	X	X				75%
Alaska	Data not provided				Data not provided	Data not provided
Arizona	Data not provided				Data not provided	Data not provided
Arkansas	X		X	AR does not allow some of the Part 503 options for treatment.		Many
California	X		X	Pursuant to plans and policies of the CA Water Board. Land applied septage must meet pathogen and VAR treatment, have no public contact, ensure domestic nature of applied material, have record-keeping system, apply based on agronomic rate, etc.		75%
Colorado	X	X		County requirements were created in response to a few poorly-run septage management programs, but no additional state requirements	Data not provided	Data not provided
Connecticut	Data not provided	Data not provided	Data not provided			some
Delaware	X		X	Meet the same metals, pathogen, and vector requirements as Class B biosolids.		7
Florida	X		X	lime stabilize for 2 hours. There are also setback and field condition requirement that are more stringent than Part 503.		many
Georgia	X		X	Maximum rate of 40,000 gallons annually / acre		Data not provided
Hawaii	X	X				Data not provided
Idaho	X		X	Health district permits required for haulers; land application sites require DEQ inspections (state permit applies state wide)		several
Illinois	X		X	Generally managed in accordance with Part 503, with reporting to IL Dept. of Health's private sewage division.		many do, but number is declining

State	Can septage be land applied in state	Can be land applied if it meets 40 CFR Part 503 only	Can be land applied if it meets 40 CFR Part 503 and additional state requirements	Additional state requirement	Does state require TWTDS to accept septage	How many TWTDS accept septage
Indiana	X	X				175
Iowa	X	X				10
Kansas	X	X				Data not provided
Kentucky	X	X				Data not provided
Louisiana	X		X	Same requirements as those for land applications of sewage sludge; pumpers and haulers are licensed by office of public health		Data not provided
Maine	X		X	Septage must be screened. Seasonal restrictions, management restrictions, etc. Each land application site must be permitted by DEP for 5-year term. Septage storage facilities must also be permitted. Must meet Part 503 and state regulations.		some
Maryland	X	X			X	At least 12
Massachusetts						at least 80
Michigan	X		X	Requires soil testing for N & P, ban on application to frozen or snow-covered soil, must be incorporated within 6 hours, must be screened, etc.		18 have DEQ authorization to accept septage
Minnesota	X	X				Data not provided
Mississippi	X	X				Most major cities do.
Missouri	X		X	Lime stabilization		Data not provided
Montana	X	X				28
Nebraska	Data not provided				Data not provided	Data not provided

State	Can septage be land applied in state	Can be land applied if it meets 40 CFR Part 503 only	Can be land applied if it meets 40 CFR Part 503 and additional state requirements	Additional state requirement	Does state require TWTDs to accept septage	How many TWTDs accept septage
Nevada	X	X				Data not provided
New Hampshire	X		X	2 classes of septage - 1 meets part 503 for land application at permitted sites (w/increased buffer distances over federal law) and the other is "EQ" and requires testing for metals, volatile & semi-volatile organic chemicals which is allowed for general distribution		46
New Jersey	X		X	At a minimum, meet Part 503 Class B	X	26
New Mexico	X		X	Must have site permit; site-specific requirements apply; a Part 503 treatment option is specified in each permit.		25
New York	X		X	Soil test for N, P, K; all septage must be limed (pH of 12 for 30 minutes)		89
North Carolina	X	X				Most larger TWTDs accept septage.
North Dakota	X		X	Data not provided		Data not provided
Ohio	X	X				Data not provided
Oklahoma	X		X	Domestic septage must be treated to maintain a pH of 12 for 30 minutes		many
Oregon	X		X	Must be screened and alkaline stabilized.		54
Pennsylvania	X		X	PA requires all septage to be treated prior to land application. Typically treated via lime stabilization (30 minutes at pH 12).		maybe 50
Rhode Island						14
South Carolina	X	X				most will accept it from surrounding areas
South Dakota	X	X				3

State	Can septage be land applied in state	Can be land applied if it meets 40 CFR Part 503 only	Can be land applied if it meets 40 CFR Part 503 and additional state requirements	Additional state requirement	Does state require TWTDS to accept septage	How many TWTDS accept septage
Tennessee	X	X				224
Texas	X	X				Data not provided
Utah	X	X				25
Vermont	X		X	Treatment by pH > 12.0 for a minimum of two hours for pathogen reduction	X	27
Virginia	X		X	Land applied septage must be managed like biosolids. Short-term treatment is discouraged; most is treated in lagoons and tested before land application.		most do not, because of high nutrient load in septage (VDH recommends TWTDS accept no more than 3% of daily flow as septage)
Washington	X	X				Data not provided
West Virginia	X		X	annual soil samples; must hold pH at or above 12 for 2 hours		10
Wisconsin	X		X	Site approvals and requirements identical to biosolids except no soil test required. Limit application generally to 39,000 gal/ac/crop year (100 lbs N). Winter prohibitions and restrictions.		193
Wyoming	X		X	Must be kept adequate distance from surface and ground waters.		some

VT-POTWs that have received certain state funding must accept

Estimated Percents of Septage Land Applied or Disposed by Other Means

State	Percent of septage land applied	Percent of septage hauled to TWTDS	Percent of septage disposed in lagoons	Percent of septage composted	Percent of septage sent to other septage-only facilities	Percent of septage going to other use or disposal	Explanation of "other"
Alabama	20	77	1	2			
Alaska	Data not provided						
Arizona	Data not provided						
Arkansas	5	95					
California	2	84	11			2	independent septage treatment facilities
Colorado	Data not provided						
Connecticut		70				30	incinerators
Delaware	20	80					
Florida	45	50				5	5% is land applied after being dewatered. Note that there are approximately 120 septage facilities.
Georgia	Data not provided						
Hawaii		100					
Idaho	About 12	most					
Illinois	Data not provided						options available are TWTDS, lagoons, incinerators, landfills, and land application

State	Percent of septage land applied	Percent of septage hauled to TWTDS	Percent of septage disposed in lagoons	Percent of septage composted	Percent of septage sent to other septage-only facilities	Percent of septage going to other use or disposal	Explanation of "other"
Indiana	10	80			10		
Iowa	85	10	5				
Kansas	50	50					
Kentucky	Data not provided						
Louisiana		30	65		5		
Maine	25	50		25			
Maryland	Data not provided						
Massachusetts		100					1,547,000 gallons of septage is accepted by POTWs daily, as reported in 2004-05 DEP study.
Michigan	50	50					On average, 203 million gallons of septage are pumped out each year. There are 5 stand-alone septage facilities that remove solids and return effluent to TWTDS.
Minnesota	75	25					less than 1% is disposed in landfills
Mississippi		100					
Missouri	40	45			15		
Montana	75	25					
Nebraska	Data not provided						

State	Percent of septage land applied	Percent of septage hauled to TWTDS	Percent of septage disposed in lagoons	Percent of septage composted	Percent of septage sent to other septage-only facilities	Percent of septage going to other use or disposal	Explanation of "other"
Nevada	50	50					Septage is usually mixed 3 parts to 1 part FOG for land application to meet the land application requirements for FOG.
New Hampshire	7	76	10		7		
New Jersey		100					
New Mexico	40	40	20				some illegal dumping has been noted and is a concern
New York	50	50					
North Carolina	60	40					Land application is mostly done in liquid form with lime treatment. A few facilities dewater, add lime, and land apply; and couple compost and land apply.
North Dakota	80	10	10				
Ohio	40	60					
Oklahoma	5	95					
Oregon	Data not provided						
Pennsylvania	Data not provided						
Rhode Island		100					
South Carolina	10	90					
South Dakota	Data not provided						

State	Percent of septage land applied	Percent of septage hauled to TWTDS	Percent of septage disposed in lagoons	Percent of septage composted	Percent of septage sent to other septage-only facilities	Percent of septage going to other use or disposal	Explanation of "other"
Tennessee	5	95					
Texas	30					70	landfill
Utah	some	the rest					
Vermont	15.6	81.5	0.5			2.4	Dewatered then landfilled
Virginia	some	most	some				There is at least one developing septage-only treatment facility, but there is need for more.
Washington	Data not provided						
West Virginia	50	50					
Wisconsin	30	70					
Wyoming	a little	most					Only a small amount of septage is land applied on rural ranches; most is hauled to TWTDS.

State Programs Addressing Fats, Oils, and Grease (FOG) Management

State	Is FOG considered a significant issue to states TWTDs?	Does the state regulate use or disposal of brown grease (grease trap waste)?	Under what rules is brown grease regulated?	Does state have proactive program to collect and dispose of FOG (fats, oils, grease) appropriately?	Description of FOG management program
Alabama	X	X	Its part of the Code of Al 1975, located at sec. 22-27-70 through 22-27-73 and updated as sections 22-27-90 through 22-27-94 Grease Law		Grease is regulated by the Dept. of Agriculture. All FOG programs are primarily reactive vs. proactive. Some municipalities and treatment facilities require separators or a certain quality of BOD.
Alaska	Data not provided	Data not provided		Data not provided	
Arizona	Data not provided	Data not provided		Data not provided	
Arkansas	X	X	individual site specific permits from Dept. of Environmental Quality		
California	X	X	CA Water Code	X	Addressed by pre-treatment programs, individual TWTDs, and SSO prevention programs.
Colorado	Data not provided	Data not provided		Data not provided	
Connecticut	X	X	Local septage regulations	X	CT has a progressive program that provides towns with incentives and support to establish tough monitoring and enforcement of grease trap cleanouts and proper management of FOG.
Delaware	X	X	LAND TREATMENT REGULATIONS DERIVED FROM 40 CFR PART 257 A		
Florida	X				Note that it is regulated when mixed with septage or biosolids but not by itself (it can be taken to WWTPs and septage management facilities). Many local WWTFs address FOG through pretreatment programs. FL has few issues with FOG, so there is no special state program.
Georgia	X	X	Commercial waste rule 391-3-6-.24	X	www.pzad.org/Assests/Documents/ci_fog.html
Hawaii	X	X	wastewater regulations		Local counties have FOG ordinances. We register FOG pumpers and require record keeping and reporting.
Idaho	Data not provided	X	solid waste requirements	Data not provided	Grease trap waste is handled under solid waste and goes to landfill.
Illinois	X	X	FOG is a "special waste," and some is recycled.	Data not provided	

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Indiana	X	X	Septage		
Iowa					
Kansas	X	Data not provided	Solid waste regulations		
Kentucky	Data not provided	Data not provided			
Louisiana	X	X	Biosolids/sludge or Solid waste regs (if FOG not mixed with sewage sludge; otherwise, it is sewage sludge)		
Maine	X				Most FOG is treated like septage, as it is usually mixed with septage.
Maryland					
Massachusetts					Grease is addressed through state plumbing codes, as well as by oversight of incoming waste by local TWTDS.
Michigan	X	X			Most POTWs will not accept FOG; septage law requires mixing FOG at a ratio of 1 to 3 with septage for land application or taking it to a POTW that will accept it. See www.michigan.gov/deqseptage
Minnesota					
Mississippi	X	X	Solid waste rules	X	State Health Department and/or local government entities conduct periodical inspection to ensure proper collection of FOG wastes; MDEQ regulates the disposal of FOG wastes through its solid waste program.
Missouri	X	X	conditions in general permit	X	pretreatment regulations address keeping FOG out of the general wastewater flow
Montana	X	X	Septage		
Nebraska	Data not provided	Data not provided		Data not provided	

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Nevada	X	X	Septage	X	FOG can be land applied, if mixed with septage. Truckee Meadows is increasing its capacity for FOG in its digester, so that it will be able to take much of the FOG that is currently land applied to boost its digester gas production.
New Hampshire	Data not provided	X	Septage		EPA says FOG and associated blockages are the number one cause of combine sewer overflows (CSOs); FOG is addressed through septage rules.
New Jersey	X	X	Although not specifically mentioned in the rules, it is typically managed like septage, although fewer facilities accept	X	Most sewer ordinances require removal of Fog prior to discharge; a few POTWs will accept FOG; has been a problem when too much is sent to one POTW. One POTW operates an incinerator and has been able to work acceptance of FOG into process to help lower fuel costs w/o the flashing problems experienced by other incinerators.
New Mexico	X	X	grounwater rules or NPDES permit		
New York		X	solid waste		
North Carolina	X	X	Septage		Individual towns and counties adopt proactive FOG management programs, but there is no state-wide program. County health departments inspect grease traps regularly. 90% of grease trap is land applied.
North Dakota	X				
Ohio	X	X	There are no formal regulations, however OH EPA has the authority to regulate FOG as needed.		
Oklahoma	Data not provided	X	Industrial waste rules		
Oregon	X	X	Septage	X	Educational efforts through the Oregon Association of Clean Water Agencies (OACWA)
Pennsylvania	X	X	residual waste rules	Data not provided	
Rhode Island	X	X	Solid/hazardous waste rules		
South Carolina	X	X	solid waste rules	X	FOG is required to be disposed of at landfills.
South Dakota	Data not provided				

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Tennessee	X	X	Septage	X	All applicable commercial establishments are required to have and maintain grease traps. There are TN FOG guidelines.
Texas	X			X	Texas encourages FOG to be disposed in landfills; FOG may not be land applied.
Utah		X	Biosolids/sludge Septage	X	FOG is adequately addressed through pretreatment programs that are created and enforced by individual TWTDS.
Vermont	X				Although there is no current program, Chittenden Solid Waste District is developing a model FOG management program with the support of a state grant.
Virginia	Data not provided	X	Biosolids/sludge or Septage		Some high-grade FOG is recycled; FOG is overseen by counties, just as septage is.
Washington		X	Septage rules apply if FOG is <25% of the total volume; solid waste rules apply if >25% in a septage mixture.		
West Virginia	X				
Wisconsin	X	X	Septage	X	Encourage introduction directly into anaerobic digester; allow land application of grease trap wastes at one-third the rate of septage.
Wyoming			federal regulations apply		