

Proposed Rulemaking for New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills

E.O. 13132 Federalism Consultation Meeting
September 10, 2013

Purpose & Agenda

- ▶ Purpose:
 - ▶ To review the EPA's requirements for Federalism consultation
 - ▶ To provide an overview of potential changes under consideration for the NSPS for MSW Landfills as a result of the statutorily-required review
 - ▶ To provide an overview of potential changes under consideration for the Emission Guidelines for MSW Landfills
- ▶ Agenda:
 - ▶ Federalism overview
 - ▶ Introduction to MSW landfills
 - ▶ Introduction to New Source Performance Standards and Emission Guidelines
 - ▶ Overview of the required review (court-ordered)
 - ▶ Additional changes under consideration
 - ▶ Approaches considered
 - ▶ Impacts of potential options
 - ▶ Next steps

E.O. 13132, Federalism

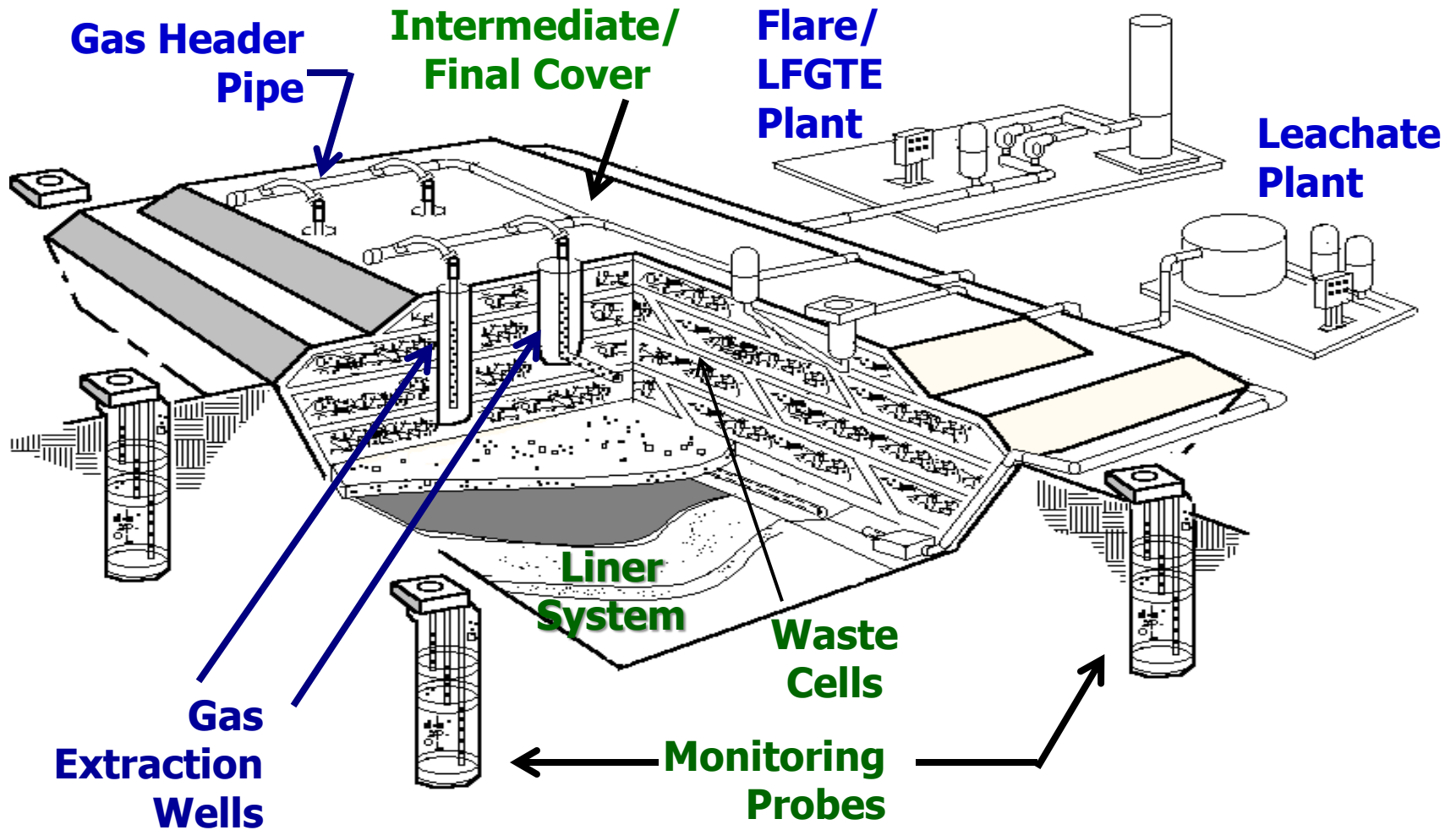
- ▶ E.O. 13132 recognizes that – generally - issues that are not national in scope or significance often are most appropriately addressed by state and/or local governments.
- ▶ However, for certain issues that may be national in scope, federal law or regulation sometimes must take precedence over existing state or local government law or regulation, or set new protective standards in cases where none exists.
- ▶ The Order requires that Federal agencies consult with elected state and local government officials, or their representative national organizations, when developing regulations that have *Federalism Implications*.
- ▶ EPA's policy for implementing the Order defines regulations with *Federalism Implications* as those which:
 - ▶ (1) preempt state or local law
 - ▶ (2)(a) have state and/or local compliance costs of \$25 million or more, nationally, in any one year
 - ▶ (2)(b) have small government impacts likely to equal or exceed 1% of their annual revenues in any year.
- ▶ This action falls in the later category, (2)(a), as it may have national intergovernmental compliance costs of \$25 million or more in any one year

What are MSW landfills?

- ▶ An MSW landfill is an entire disposal facility in a contiguous geographical space where household waste is placed in or on land
 - ▶ Landfills may also receive RCRA subtitle D waste (e.g., commercial solid waste, non-hazardous sludge, conditionally exempt small quantity generator waste, and industrial waste)
- ▶ The pollutant of concern is MSW landfill emissions
 - ▶ Commonly referred to as landfill gas
 - ▶ Generated by the decomposition of organic waste
- ▶ Landfill gas composition
 - ▶ 50% methane,
 - ▶ 50% carbon dioxide
 - ▶ trace amounts of nonmethane organic compounds (NMOC)

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Modern MSW Landfill



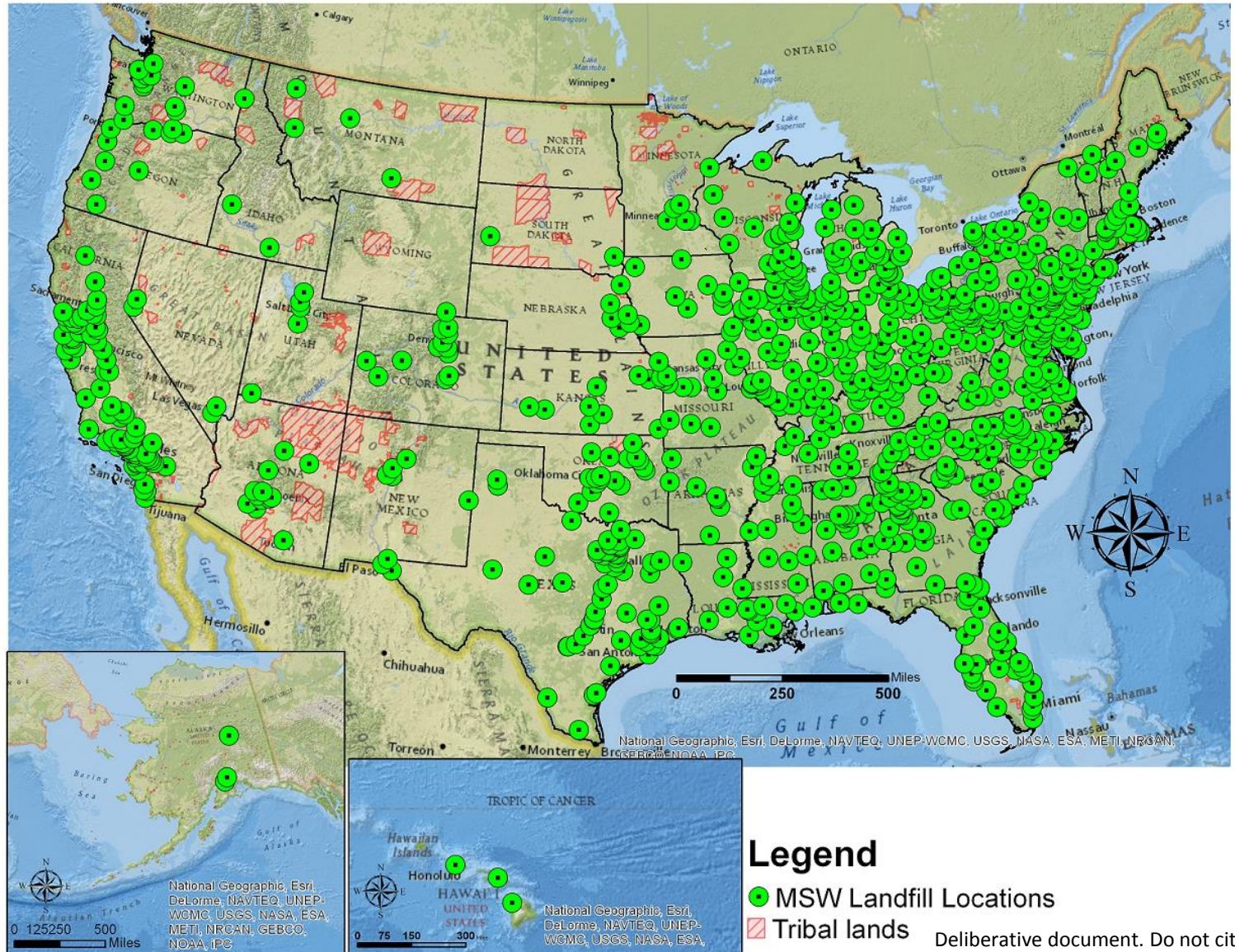
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How big is the MSW landfill industry?

- ▶ Over 2000 active landfills in the United States
- ▶ 729 landfills are currently subject to either the NSPS or EG
- ▶ Ownership of MSW landfills may be public or private
- ▶ Over the next 5 years, 20 new landfills are predicted



MSW Landfill Locations



What are NSPS?

- ▶ NSPS implement CAA section 111(b) and are technology based standards that apply to stationary sources that “cause, or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare”
- ▶ NSPS applies to landfills that commenced construction, modification, or reconstruction on or after May 30, 1991
- ▶ The Clean Air Act (CAA) requires EPA review, and if necessary, revise an NSPS at least every 8 years.
- ▶ Costs are considered in the development of NSPS

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What are EG?

- ▶ Emission guidelines are established for existing sources under CAA section 111(d)
- ▶ EG apply to existing landfills that accepted waste on or after November 8, 1987
- ▶ Provide guidance for regulating landfill gas emissions which the States are required to implement through individual State plans
- ▶ State plans must generally be as stringent as the EG, but states have the flexibility to apply less stringent limits or compliance schedules on a case-by-case basis

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What are the current rule requirements?

- ▶ The NSPS and EG were promulgated on March 12, 1996
- ▶ Landfill gas is the regulated pollutant for the NSPS and the designated pollutant for the EG
 - ▶ Nonmethane organic compounds (NMOC) are measured as a surrogate for landfill gas in both rules
 - ▶ NMOC also contain hazardous air pollutants (HAP) (e.g. benzene, ethylene, toluene, xylene)
- ▶ NSPS and EG reduced VOCs, air toxics, and malodorous compounds from existing and new landfills. Also achieved significant methane reductions.

Parameter	Value
Size Threshold	2.5 million megagrams (mass) or 2.5 cubic meters (volume)
Emission Threshold	50 Mg/yr NMOC
Collection System and Control System Installation Period	30 months
Method of Gas Control	Open flare, enclosed flare, or treatment for beneficial use
Wellfield Expansion Period	5 years for active cells; 2 years for closed cells or final grade
Monitoring	Monthly gas extraction well monitoring, quarterly surface monitoring

Why reevaluate the NSPS and EG?

- ▶ Notice of Intent to Sue (Oct. 23, 2008) requests the NSPS be reviewed
- ▶ NSPS review required by the Clean Air Act and compelled by a court-ordered deadline (Mandatory duty suit filed June 30, 2011)
 - ▶ EPA agreed to propose the rule by February 4, 2014 and take final action on the proposal by December 17, 2014
- ▶ Data collected from several sources for the review
 - ▶ Voluntary Information Collection Request
 - ▶ EPA's Landfill Methane Outreach Program (LMOP) Landfill and Landfill Gas Energy Project Database
 - ▶ Greenhouse Gas Reporting Program (GHGRP)
- ▶ Data indicated a need to evaluate and account for changes that have occurred in the landfill industry since the NSPS and EG were originally promulgated in 1996
 - Proliferation of landfill gas to energy projects
 - Variety of new monitoring techniques
- ▶ Final data set includes:
 - ▶ 1,851 existing landfills
 - ▶ 20 predicted future landfills

Why reevaluate the NSPS and EG?

- ▶ While a review of the landfill emission guidelines is not statutorily required, we believe that revisions to these rules are also appropriate for the following reasons:
 - ▶ Tools are now available to conduct a more robust assessment of the size, type, and emissions of landfills as well as their ability to support energy recovery projects
 - Indicates a need to reevaluate the thresholds and other requirements established in the emission guidelines
 - Data collection efforts also indicate the population of existing landfills is much larger than the projected number of new sources
 - ▶ The emission guidelines rely heavily on the NSPS
 - Guidelines need review to see if cross-references to the NSPS are still appropriate for existing sources
 - ▶ After the original rulemaking, Federal plan was issued to implement EG requirements in States and Indian Country where State and Tribal plans were not adopted
 - With a Federal plan in place, the EPA has implemented a regulation for existing sources
 - If action taken on existing sources, EPA will likely need to update the Landfills Federal plan

Are there additional issues being considered?

- ▶ Amendments to the rules were proposed in 2002 and 2006 to address accountability and transparency
- ▶ A number of issues from those amendments may be addressed in this action including:
 - ▶ Clarification of landfill owner/operator and treatment system owner/operator compliance responsibilities
 - ▶ Definition of landfill gas treatment
 - ▶ Startup, shutdown, and malfunction
- ▶ We are also exploring changes to the surface monitoring requirements

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What has the EPA done so far?

- ▶ Held a technical meeting on October 22, 2012 to discuss various issues related to MSW landfills
 - ▶ Participants included: industry, states, environmental groups, and academics
- ▶ Assessed numerous technical options using data from voluntary survey, GHGRP, and LMOP
 - ▶ Model landfills created to address gaps in dataset
- ▶ We evaluated impacts of options by varying the following:
 - ▶ Design size
 - ▶ Emission rate threshold
 - ▶ Time allotted for gas collection system installation
 - ▶ Time allotted for wellfield expansion
 - ▶ Surface monitoring requirements

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Impacts of Potential Options

IF...	THEN...	POTENTIAL IMPACTS...
We lower the design size threshold	Additional landfills will become subject to the rule. Higher emission reductions than those achieved by the current rule.	Likely to increase annual reporting burden for landfills under the emission threshold. Additional permitting for landfills under the threshold.
We remove the design size threshold	Small number of additional landfills will be required to install controls. Slightly higher reductions than those achieved by the current rule.	Require NMOC reporting from a significant number of landfills that would not be required to control. Creates a potential permitting issue.
We lower the emission threshold	Significantly higher emission reductions than those achieved by the current rule.	Highest net cost. Cost effectiveness similar to options considered for wellfield expansion.
We shorten the time allowed for gas collection and control system installation	Controls will be required earlier. Majority of additional reductions achieved within the first few years.	Costs incurred earlier, contributing to a higher annualized cost over 10 year period.
We shorten the time allowed for well field expansion	Collect gas from areas or cells on a more frequent basis. Significantly higher emission reductions than those achieved by the current rule.	Highest cost effectiveness.

Options for New Landfills

Option	Description
1	-Reduce time allotted for installation
2	-Reduce emission threshold -Reduce time allotted for installation and expansion
3	-Reduce design size threshold -Reduce emission threshold -Reduce time allotted for installation
4	-Reduce design size threshold -Reduce emission threshold -Reduce time allotted for installation and expansion
5	-Increase design size threshold -Reduce emission threshold -Reduce time allotted for expansion
6	-Increase design size threshold -Reduce emission threshold

Costs for NSPS Options

Annualized Costs, 2014-2023			
Option	No. Affected Landfills	Nationwide	Average Cost Per Landfill
1	16	\$340,000	\$21,300
2	16	\$830,000	\$52,000
3	16	\$560,000	\$35,000
4	16	\$1.1 million	\$69,000
5	16	\$440,000	\$28,000
6	16	\$290,000	\$18,000

•Costs have been annualized at 7% and numbers have been independently rounded.

Emission Reductions for NSPS Options

Emissions Reductions (Annual Avg in Metric Tons)		
Option	Landfill Gas	Methane
1	18,000	5,000
2	55,000	15,000
3	29,000	8,000
4	62,000	17,000
5	26,000	7,000
6	13,000	3,500

•Numbers have been independently rounded.

Options for Existing Landfills

Option	Description
1	-Reduce time allotted for installation
2	-Reduce emission threshold -Reduce time allotted for installation and expansion
3	-Reduce design size threshold -Reduce emission threshold -Reduce time allotted for installation
4	-Reduce design size threshold -Reduce emission threshold -Reduce time allotted for installation and expansion
5	-Increase design size threshold -Reduce emission threshold -Reduce time allotted for expansion
6	-Increase design size threshold -Reduce emission threshold

Costs for EG Options

Annualized Costs, 2014-2023

Option	Entity type	No. Affected Landfills	Nationwide	Average Cost Per Landfill
1	Small	70	\$0.5 million	\$7500
	Not small	620	\$2.0 million	\$3400
2	Small	80	\$5.0 million	\$65,000
	Not small	700	\$39 million	\$56,000
3	Small	80	\$4.0 million	\$50,000
	Not small	700	\$27 million	\$39,000
4	Small	100	\$10 million	\$98,000
	Not small	760	\$58 million	\$76,000
5	Small	80	\$4.0 million	\$51,000
	Not small	680	\$33 million	\$48,000
6	Small	80	\$3.0 million	\$32,000
	Not small	690	\$20 million	\$30,000

- Costs have been annualized at 7% and numbers have been independently rounded.
- Small landfills: public landfills affecting a population of 50,000 or less; private landfills with revenues of \$35.5 million or less
- Not small: all other landfills

Emission Reductions for EG Options

Emissions Reductions (Annual Avg in Metric Tons)

Option		Landfill Gas	Methane
1	Small	49,000	13,000
	Not Small	290,000	80,000
2	Small	265,000	72,000
	Not Small	1.8 million	490,000
3	Small	220,000	60,000
	Not Small	1.4 million	380,000
4	Small	400,000	110,000
	Not Small	2.5 million	670,000
5	Small	180,000	48,000
	Not Small	1.4 million	380,000
6	Small	120,000	32,000
	Not Small	880,000	240,000

•Numbers have been independently rounded.

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What are the next steps?

- ▶ Do you have any additional information that the EPA should be aware of?
 - ▶ If so, please provide.
- ▶ Do you have any other approaches that you would like the EPA to consider?
- ▶ Comments will be due to the EPA in approximately 8 weeks, November 8, 2013.
- ▶ Please send written comments to:
Ward.Hillary@epa.gov and copy
Hanson.Andrew@epa.gov

Questions?

- ▶ Project lead: Hillary Ward
 - (919)541-3154
 - Ward.Hillary@epa.gov

- ▶ Federalism Contact: Andrew Hanson
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Appendix A

State and Local Governments Potentially Subject to Regulation

Ada County, ID	Black Hawk County Solid Waste Mgmt. Comm.	Butte County, CA	Chautauqua County, NY
Alamance County, NC	Black Warrior Solid Waste Disposal Authority, AL	Calhoun County Commission, AL	Chemung County SWMD, NY
Androscoggin Valley Regional Refuse Disposal District (AVRRDD), NH	Boone County, IA	Canadian County, OK	Chester County Solid Waste Authority, PA
Arapahoe County, CO	Bradley County, TN	Cape May County Municipal Utilities Authority, NJ	Citrus County Board of County Commissioners
Augusta County, VA	Brazos Valley SWMA	Catawba County, NC	City and County of Honolulu, HI
Baltimore County, MD	Brevard County, FL	Cecil County, MD	City of Akron, OH
Bartholomew County Solid Waste Management District, IN	Broome County, NY	Cedar Rapids-Linn County Solid Waste Agency	City of Albany, NY
Bartow County, GA	Brown County Port & Solid Waste Department, WI	Charles County, MD	City of Albuquerque, EHD, NM
Berkeley County Water and Sanitation Authority, SC	Buncombe County Department of Solid Waste, NC	Charleston County, SC	City of Alcoa, TN, Blount County, TN, City of Maryville, TN
Bi-County Solid Waste Management Systems, TN	Burlington County Board of Chosen Freeholders	Charlotte County Solid Waste, FL	City of Amarillo, TX

State and Local Governments Potentially Subject to Regulation

City of Arlington	City of Charleston, WV	City of Durham, NC	City of Grand Prairie, TX
City of Augusta-Richmond County	City of Chattanooga, TN	City of Edinburg, TX	City of Greensboro, NC
City of Avenal, CA	City of Cheyenne, WY	City of El Paso, TX	City of Huntsville S.W. Disposal Authority
City of Baltimore, MD	City of Clovis	City of Enid, OK	City of Iowa City, IA
City of Baton Rouge/East Baton Rouge Parish	City of Columbia, MO	City of Farmers Branch, TX	City of Irving, TX
City of Beaumont, TX	City of Conroe	City of Flagstaff, AZ	City of Jacksonville, FL
City of Billings, MT	City of Corpus Christi, TX	City of Fort Smith Department of Sanitation, AR	City of Janesville
City of Birmingham, AL	City of Corsicana, TX	City of Fort Worth, TX	City of Johnson City, TN
City of Bristol, VA	City of Dallas, TX	City of Garland, TX	City of LaGrange, GA
City of Broken Arrow	City of Denton, TX	City of Gary Department of Environmental Affairs, IN	City of Laredo, TX
City of Brownwood, TX	City of Denver, CO	City of Glasgow, KY	City of Lawton
City of Carson City	City of Dothan, AL	City of Glendale, AZ	City of Lee's Summit, MO

State and Local Governments Potentially Subject to Regulation

City of Lincoln, NE	City of Phoenix, AZ	City of Springfield, MO	City of Wichita, KS
City of Little Rock, AR	City of Raleigh Solid Waste Services Dept.	City of St. Joseph, MO	City of Winston-Salem, NC
City of Los Angeles, Bureau of Sanitation, CA	City of Rapid City, SD	City of Superior Public Works	Clark County Department of Public Works, NV
City of Lynchburg	City of Riverview	City of Tacoma, WA	Clayton County, GA
City of Macon, GA	City of Rochelle, IL	City of Temple	Clinton County Area Solid Waste Agency, IA
City of McKinney, TX	City of Salina, KS	City of Toledo, OH	Clinton County Solid Waste Authority, PA
City of Midland Utilities Dept., MI	City of San Antonio, TX	City of Tucson, AZ	Clinton County, NY
City of Midland, TX	City of Santa Cruz, CA	City of Tyler, TX	Coastal Regional Solid Waste Management Authority, NC
City of Mobile	City of Seattle, WA	City of Victoria, TX	Coffee County Commission, AL
City of Montgomery, AL	City of Shreveport, LA	City of Virginia Beach, VA	Collier County, FL
City of Mountain View	City of Sioux Falls, SD	City of Waco, TX	Columbus Consolidated Government, GA
City of Nashua, NH	City of Springfield, MA	City of Wichita Falls, TX	Commonwealth of Puerto Rico

State and Local Governments Potentially Subject to Regulation

Connecticut Resources Recovery Authority (CRRA)	Dalton-Whitfield Regional Solid Waste Management Authority (DWRSWMA), GA	Douglas County, OR	Gaston County, NC
County of Fairfax, VA	Dane County Public Works, WI	Dubuque Metropolitan Area Solid Waste Agency, IA	Georgetown County Environmental Services Division, SC
County of Frederick, VA	Davidson County, NC	Elkhart County, IN	Gloucester County, NJ
County of Kootenai	Daviess County, KY	Erie County, OH	Golden Triangle Regional Solid Waste Management Authority, MS
County of Monmouth	DeKalb County Sanitation, GA	Escambia County, FL	Gordon County, GA
County of San Diego, CA	Delaware County, PA	Fairbanks North Star Borough	Greater Lebanon Refuse Authority, PA
Cowlitz County, WA	Delaware Solid Waste Authority	Flathead County Solid Waste District, MT	Greater New Bedford Regional Refuse Management District
Craighead County Solid Waste Disposal Authority	Des Moines County Regional Waste Commission, IA	Floyd County, IN, Clark County, IN	Greenbrier County Solid Waste Authority, WV
Crawford County General Health District	Des Moines Metropolitan Area Solid Waste Agency	Ford County, KS	Greenville County, SC
Crittenden County, AR	Deschutes County, OR	Forest Preserve District of DuPage County	Hall County, Public Works Department, GA
Cumberland County, NC	Development Authority of the North Country (DANC)	Fresno County, CA	Hamblen County-Morristown Solid Waste Board, TN
Cumberland County, NJ	Dougherty County Solid Waste Department, GA	Fulton County, NY	Hancock County, OH

State and Local Governments Potentially Subject to Regulation

Hardin County Fiscal Court, KY	Jefferson County, AL	La Salle Parish Police Jury, LA	Madison County, NY
Harford Waste Disposal Center	Jefferson Davis Parish Sanitary Landfill Commission, LA	Lake County, OH	Maine State Planning Office
Hawaii County, HI	Jefferson Parish Department of Environmental Affairs, LA	Lancaster County Solid Waste Management Authority, PA	Manatee County, FL
Haywood County, NC	Johnston County, NC	Lane County	Marion County, FL
Henrico County, VA	Kane County Department of Environmental Management	Larimer County, CO, Loveland, Fort Collins	Martin County, FL
Highlands County, FL	Kent County Department of Public Works, MI	Lee County Solid Waste Management Commission, IA	Maryland Environmental Service
Hillsborough County Public Utilities Dept./Solid Waste Management Div., FL	Kern County, CA	Leflore County Board of Supervisors	Mason County Fiscal Court, KY, City of Maysville, KY
Horry County Solid Waste Authority, SC	King and Queen County, VA	Lenoir County, NC	Matanuska-Susitna Borough
Houston County Board of Commissioners, GA	King County Solid Waste Division, WA	Lexington-Fayette Urban County Government (LFUCG)	Maui County, HI
Howard County, MD	King George County, VA	Loudon County Solid Waste Commission, TN	Merced County, CA
Indian River County Solid Waste Disposal District, FL	Knox County Landfill Committee	Lycoming County, PA	Mesa County, CO
Iredell County, NC	La Crosse County Solid Waste, WI	Madera County, CA	Metro, OR

State and Local Governments Potentially Subject to Regulation

Miami-Dade County, FL	Municipality of Mayaguez	New River Resource Authority (NRRA)	Ontario County, NY
Middlesex County Utilities Authority	Municipality of Ponce	New River Solid Waste Association, FL	Orange County Integrated Waste Management Department
Monroe County, NY	Municipality of Toa Alta	New York City Bureau of Waste Disposal	Orange County, FL
Monterey Regional Waste Management District, CA	Municipality of Toa Baja	North Texas Municipal Water District	Orange County, NC
Montgomery County, MD	Murray County, GA	Northeast AR RSWMD	Orange County, NY
Montrose County	Muscatine County Solid Waste Management Agency	Northeast Mississippi Solid Waste Management Authority	Pike County Fiscal Court, KY
Morgan County, AL	Muskegon County, MI	Northeast Nebraska Solid Waste Coalition	Pima Maricopa Indian Community
Municipality of Anchorage, AK	Napa-Vallejo Waste Management Authority	Northern Tier Solid Waste Authority (NTSWA), PA	Pine Belt Regional Solid Waste Management Authority, MS
Municipality of Arecibo	Nassau County, FL	Northwest Iowa Solid Waste Agency, IA	Pinellas County, FL
Municipality of Carolina	Nelson County, KY	Okaloosa County Public Works, FL	Pitkin County, CO
Municipality of Fajardo	New Hanover County Department of Environmental Management, NC	Oneida-Herkimer Solid Waste Authority	Polk County Board of Commissioners, GA
Municipality of Juncos	New Jersey Meadowlands Commission	Onslow County Solid Waste Department, NC	Polk County, TX

State and Local Governments Potentially Subject to Regulation

Pollution Control Financing Authority of Camden County, NJ	Santa Barbara County, CA	South Utah Valley Solid Waste District	Sullivan County, NY
Prince George's County, MD	Santa Fe Solid Waste Management Agency, NM	Southeast Berrien County Landfill Authority	Sussex County Municipal Utilities Authority
Prince William County, VA	Sarasota County, FL	Southeastern Chester County Refuse Authority (SECCRA), PA	Tangipahoa Parish Government
Putnam County, FL	Sarpy County, NE	Southeastern Public Service Authority, VA	Three Rivers Regional Solid Waste Management Authority, MS
Reno County, KS	Seminole County Board of Commissioners, FL	Southern Idaho Regional Solid Waste	Three Rivers Solid Waste Authority, SC
Rhode Island Resource Recovery Corporation	Shasta County, CA	Spartanburg County Public Works Department, SC	Town of Brookhaven
Richmond Sanitary District	Shelby County, AL	St. Clair County, MI	Town of Colonie, NY
Riverside County, CA	Shoals Solid Waste Disposal Authority, AL	St. Landry Parish Solid Waste Disposal District, LA	Town of Hempstead, NY
Roanoke Valley Resource Authority	Snohomish County Public Works, WA	St. Lucie County	Town of Islip, NY
San Joaquin County, CA	Solid Waste Authority of Central Ohio	St. Mary Parish Police Jury	Town of Manchester, CT
Sanitation Districts of Los Angeles County, CA	Solid Waste Authority of Palm Beach County, FL	Stanislaus County, CA	Trans-Jordan Cities, UT
Sanitation Districts of Los Angeles County, CA, City of Glendale, CA	Sonoma County, CA	Steuben County, NY	Tucker County Solid Waste Authority, WV

State and Local Governments Potentially Subject to Regulation

Unified Government of Athens-Clarke County (ACCUG)	Western Placer Waste Management Authority
United States Navy	Whiteside County
Ventura Regional Sanitation District, CA	Wicomico County
Virgin Islands Waste Management Authority	Will County Land Use Department, IL
Wake County, NC	Winnebago County, WI
Wasatch Integrated Waste Management District	Worcester County, MD
Washington County Special Services District	Yakima County, WA
Washington County, MD	Yolo County, CA
Waste Commission of Scott County, IA	
Wayne County, NC	