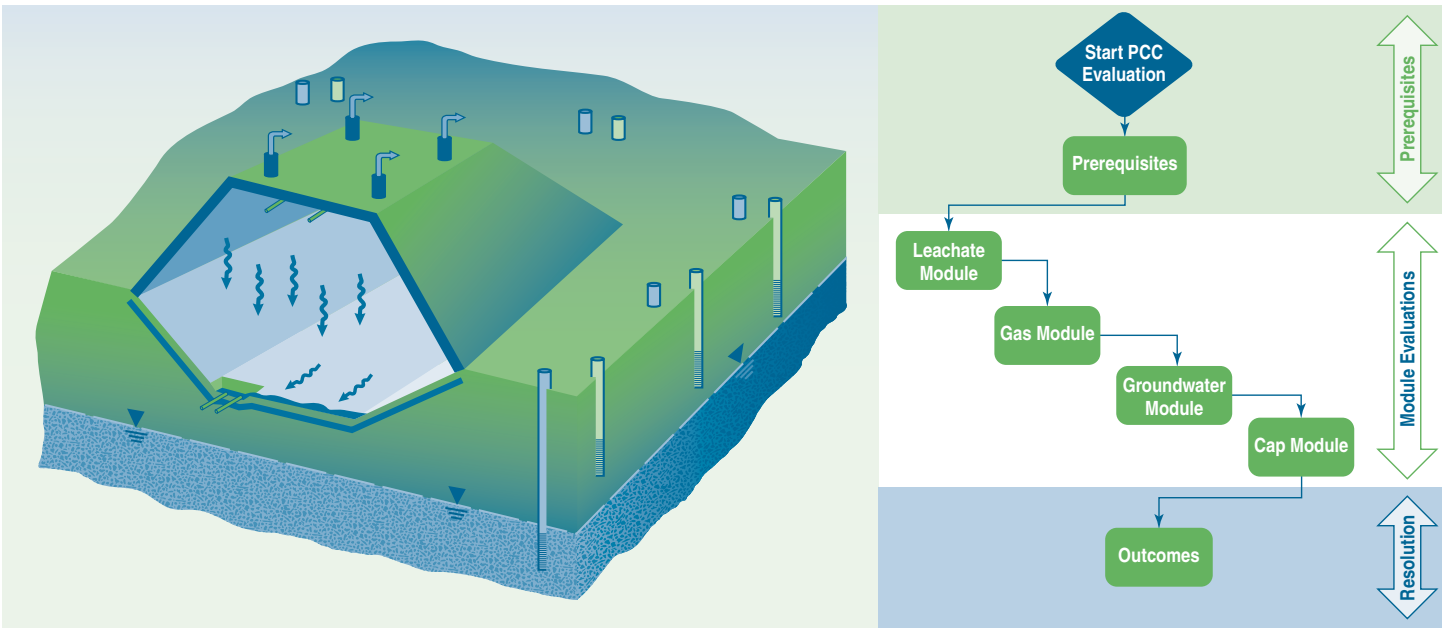




Technical/Regulatory Guideline

Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on Site-Specific Data Evaluations



September 2006

Prepared by
The Interstate Technology & Regulatory Council
Alternative Landfill Technologies Team

ABOUT ITRC

Established in 1995, the Interstate Technology & Regulatory Council (ITRC) is a State-led, national coalition of personnel from the environmental regulatory agencies of some 40 states and the District of Columbia; three Federal agencies; tribes; and public and industry stakeholders. The organization is devoted to reducing barriers to, and speeding interstate deployment of, better, more cost-effective, innovative environmental techniques. ITRC operates as a committee of the Environmental Research Institute of the States (ERIS), a Section 501(c)(3) public charity that supports the Environmental Council of the States (ECOS) through its educational and research activities aimed at improving the environment in the United States and providing a forum for State environmental policy makers. More information about ITRC and its available products and services can be found on the Internet at **www.itrcweb.org**.

DISCLAIMER

This document is designed to help regulators and others develop a consistent approach to their evaluation, regulatory approval, and deployment of specific technologies at specific sites. Although the information in this document is believed to be reliable and accurate, this document and all material set forth herein are provided without warranties of any kind, either express or implied, including but not limited to warranties of the accuracy or completeness of information contained in the document. The technical implications of any information or guidance contained in this document may vary widely based on the specific facts involved and should not be used as a substitute for consultation with professional and competent advisors. Although this document attempts to address what the authors believe to be all relevant points, it is not intended to be an exhaustive treatise on the subject. Interested readers should do their own research, and a list of references may be provided as a starting point. This document does not necessarily address all applicable health and safety risks and precautions with respect to particular materials, conditions, or procedures in specific applications of any technology. Consequently, ITRC recommends also consulting applicable standards, laws, regulations, suppliers of materials, and material safety data sheets for information concerning safety and health risks and precautions and compliance with then-applicable laws and regulations. The use of this document and the materials set forth herein is at the user's own risk. ECOS, ERIS, and ITRC shall not be liable for any direct, indirect, incidental, special, consequential, or punitive damages arising out of the use of any information, apparatus, method, or process discussed in this document. This document may be revised or withdrawn at any time without prior notice.

ECOS, ERIS, and ITRC do not endorse the use of, nor do they attempt to determine the merits of, any specific technology or technology provider through publication of this guidance document or any other ITRC document. The type of work described in this document should be performed by trained professionals, and federal, state, and municipal laws should be consulted. ECOS, ERIS, and ITRC shall not be liable in the event of any conflict between this guidance document and such laws, regulations, and/or ordinances. Mention of trade names or commercial products does not constitute endorsement or recommendation of use by ECOS, ERIS, or ITRC.

Evaluating, Optimizing, or Ending Post-Closure Care at MSW Landfills Based on Site-Specific Data Evaluations

September 2006

**Prepared by
The Interstate Technology & Regulatory Council
Alternative Landfill Technologies Team**

**Copyright 2006 Interstate Technology & Regulatory Council
444 North Capitol Street, NW, Suite 445, Washington, DC 20001**

Permission is granted to refer to or quote from this publication with the customary acknowledgment of the source. The suggested citation for this document is as follows:

ITRC (Interstate Technology & Regulatory Council). 2006. *Evaluating, Optimizing, or Ending Post-Closure Care at MSW Landfills Based on Site-Specific Data Evaluations*. ALT-4. Washington, D.C.: Interstate Technology & Regulatory Council, Alternative Landfill Technologies Team. www.itrcweb.org.

1.0 INTRODUCTION

One of the challenges facing both state agencies, as lead regulatory entities (in accordance with their statutes, rules, regulations, etc.), and the solid waste industry is determining why, when, and how to evaluate, optimize and potentially end the regulatory post-closure care (PCC) period for a permitted solid waste disposal facility. U.S. Environmental Protection Agency (EPA) guidance (EPA 1998) allows states the use of flexible, performance-based standards for solid waste landfill activities, including satisfying the requirements for PCC and financial assurance (FA), while ensuring protection of human health and the environment (HH&E) (see inset). EPA provides the foundation for use of a performance-based process to determine whether a closed solid waste landfill poses a threat. This Interstate Technology & Regulatory Council (ITRC) guidance document proposes a decision process where the evaluation conducted on a site-specific basis can provide information necessary to defensibly optimize PCC. In addition, this guidance document provides a process to potentially conclude that a closed solid waste landfill does not pose a threat at the point of exposure (POE) and, therefore, allows for the regulatory determination that PCC can be ended. Team discussions and research found that states were not able to clearly define when no further regulatory oversight would be needed; therefore we are introducing the “custodial care” (CC) option to encompass the few remaining control mechanisms necessary, after ending regulatory PCC, to ensure that land use changes do not cause an unacceptable change in the threat to HH&E.

The fundamental basis of threat, as used in this document is human health and the environment.

“If their permitting programs have been approved by EPA, States can allow the use of flexible performance standards established in 40 CFR Part 258 in addition to the self-implementing technical standards for many of the criteria. Approved States can provide owners/operators flexibility in satisfying the location restrictions, operating criteria, and requirements for liner design, groundwater monitoring, corrective action, closure and post-closure care, and financial assurance. This flexibility allows for the consideration of site-specific conditions in designing and operating a MSWLF at the lowest cost possible while ensuring protection of human health and the environment.” (EPA 1998)

introducing the “custodial care” (CC) option to encompass the few remaining control mechanisms necessary, after ending regulatory PCC, to ensure that land use changes do not cause an unacceptable change in the threat to HH&E.

The decision process presented in this guidance is structured on the foundation established by EPA that an owner or operator may cease managing leachate if it can be demonstrated that the leachate no longer poses a threat to HH&E [40 CFR §258.61(a)(2)]. Section 259.63 of the Code of Federal Regulations (CFR) goes on to state:

(a) Following closure of each MSWLF [municipal solid waste landfill] unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under paragraph (b) of this section, and consist of at least the following:

- (1) Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover;
- (2) Maintaining and operating the leachate collection system in accordance with the requirements in §258.40, if applicable. The Director of an approved State may allow the owner or operator to stop managing leachate if the owner or operator

exist at closed WMUs around the United States: exposed geomembrane covers, state-specific designs, caps designs featuring capillary break systems, “store and release” covers, phyto-caps, bioactive cover systems, simple soil covers, etc. In addition, alternative covers and capping scenarios may be considered to facilitate post-landfilling operations (see ITRC 2003). The consideration of alternative covers and the timing of cover placement to support post-landfilling operations is consistent with the regulatory flexibility identified above 40 CFR 258.60 (f) and (g) (see box), provided their performance is protective of HH&E. In summary, the central questions to answer with regard to cap performance are as follows:

- Does containment of leachate, LFG, and/or waste need to be continued, and, if yes, for how long?
- If the condition of the cap were to change, or if there were no cap, would the quantity and/or quality of leachate, LFG, and/or waste change in a way that would adversely affect protection of HH&E and thus require containment?
- Knowing the site-specific performance requirements, what needs to be done for the cap to continue to fulfill its required function?
- At what stage and under what conditions can it safely be assumed that PCC for the cap will be ended and long-term care of the WMU will be transferred to a post-regulatory program such as CC?

40 CFR Part 258.60

(f) The owner or operator must begin closure activities of each MSWLF unit no later than 30 days after the date on which the MSWLF unit receives the known final receipt of wastes or, if the MSWLF unit has remaining capacity and there is a reasonable likelihood that the MSWLF unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the Director of an approved State if the owner or operator demonstrates that the MSWLF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed MSWLF unit.

(g) The owner or operator of all MSWLF units must complete closure activities of each MSWLF unit in accordance with the closure plan within 180 days following the beginning of closure as specified in paragraph (f) of this section. Extensions of the closure period may be granted by the Director of an approved State if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and he has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed MSWLF unit.

<http://www.epa.gov/epaoswer/non-hw/tribal/pdf/txt/40cfr258.pdf>

The cap module addresses these questions in the following steps:

- Evaluating whether the existing cap provides the level of integrity needed to fulfill the post-closure requirements (CC) of the WMU
- Guiding modification of the cap as needed for it to fulfill all of its applicable post-closure requirements (including CC)
- Developing a cap monitoring and maintenance plan (CMMP) that will demonstrate that the level of cap integrity needed for the cap to meet all applicable post-closure obligations (including CC) is provided for as long as required for continued protection of HH&E.

Appendix A

Acronyms

Appendix B

Glossary

Appendix C

State Survey

Appendix D

State Post-Closure Care Regulations and Guidance

STATE POST-CLOSURE CARE REGULATIONS AND GUIDANCE

Table D-1. State Post-Closure Care Regulations and Guidance

from Performance-Based System for Post-Closure Care at MSW Landfills, Environmental Research and Education Foundation, 2006

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
ALABAMA Department of Environmental Management Land Division Solid Waste Branch www.adem.state.al.us	Alabama Environmental Regulations, Division 13, Chapter 4 Applicability: All MSW landfills.	Following closure of each LF unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for a minimum of 30 years; or a minimum of 5 years if closed prior to October 9, 1993, or the effective date of §258.1 of 40 CFR 258, Solid Waste Disposal Criteria, whichever is later; except as provided under 335-13-4-.20(3)(b). The length of the post-closure care period may be: (1) Decreased by the Department if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the Department; or (2) Increased by the Department if the Department determines that the lengthened period is necessary to protect human health and the environment.
ALASKA Department of Environmental Conservation Division of Environmental Health Solid Waste Management www.state.ak.us/local/akpages/ENV.CONSERV/home.htm	18 AAC 60.397. Post-Closure Care Requirements for a Class I or Class II MSWLF.	Per Subtitle D.
ARKANSAS Department of Environmental Quality Solid Waste Management Division www.adeg.state.ar.us	ADPC&E Regulation Section 22.1302 – Post-closure care Requirements.	Per Subtitle D.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
ARIZONA Department of Environmental Quality www.adeq.state.az.us	Arizona Revised Statute (A.R.S. § 49.762). AHWMA/RCRA Post-Closure Permit Application Completeness / Technical Evaluation Checklist. Applicability: Post-closure facility with no active hazardous waste management units.	Per Subtitle D, "The Arizona revised statutes adopt the Federal criteria for MSWLFs (40 CFR 258) by reference. The rationale for determining the length of time between inspections should be provided as part of the post-closure plan.
CALIFORNIA Environmental Protection Agency www.calepa.ca.gov and Integrated Waste Management Board www.ciwmb.ca.gov and State Water Resources Control Board www.swrcb.ca.gov	CCR, Title 27 ("Combined Regulations of the State Water Resources Control Board (SWRCB) and the California Integrated Waste Management Board" (CIWMB), Division ("Solid Waste"), Subdivision 1 ("Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste"), Chapters 1 through 6 (169 pages). § 20950-21200: Closure and post-closure standards § 21769-21900: Closure and post-closure plans	Post-closure maintenance for the purposes of reducing impacts to health and safety, shall be conducted to ensure the integrity of the final cover and environmental control systems. The landfill shall be maintained and monitored for a period of not less than thirty (30) years after the completion of closure of the entire solid waste landfill. Any areas in which final cover is placed prior to the closure of the entire landfill shall be maintained in accordance with an approved post-closure maintenance plan, but the thirty (30) year monitoring period shall not commence until closure of the entire landfill is complete. The operator of a solid waste landfill may be released from post-closure, after a minimum period of thirty (30) years upon demonstration to and approval by the CIWMB, the EA, and the RWQCB that the solid waste landfill no longer poses a threat to the public health and safety and the environment.
COLORADO Department of Public Health and Environment Hazardous Materials and Waste Management Division www.cdphe.state.co.us/cdphehom.asp	Regulations Pertaining to Solid Waste Disposal Sites and Facilities – 6 CCR 1007-2.	For MSWLFs, the post-closure care period shall be established by the Department and the governing body having jurisdiction per Section 3.6, shall be based on the operating history of the site, and shall be at least thirty (30) years.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
<p>DELAWARE Department of Natural Resources and Environmental Control Division of Air and Waste Management Solid and Hazardous Waste Management Branch www.dnrec.state.de.us/dnrec2000</p>	<p>Delaware Regulations Governing Solid Waste.</p> <p>Applicability: Sanitary landfills that accept household waste.</p>	<p>The owner or operator of a sanitary landfill must continue post-closure care for 30 years after the completion of closure. At any time during the post-closure care period the Department may remove one or more of the post-closure care requirements described in Section 5.K.2 below if it determines that the requirement(s) is / are no longer necessary for the protection of human health and the environment. At any time after the first five years of the post-closure care period, the Department may reduce the length of the post-closure care period or terminate post-closure care if it determines that such care is no longer necessary. Prior to the time that the post-closure care period is due to expire, the Department may extend the post-closure care period if it determines that the extended period is necessary to protect human health and the environment.</p>
<p>FLORIDA Department Of Environmental Protection Waste Management</p>	<p>Chapter 62-701, F.A.C., Solid Waste Management Facilities.</p> <p>Applicability: Any landfill that receives wastes after January 6, 1993.</p>	<p>The owner or operator of any landfill which receives wastes after January 6, 1993, shall continue to monitor and maintain the integrity and effectiveness of the final cover as well as other appurtenances of the facility in accordance with an approved closure plan for 30 years from the date of closing. Before the expiration of the long-term care monitoring and maintenance period, the Department may extend the time period if the closure design or closure operation plan is found to be ineffective. The owner or operator of a landfill may apply to the appropriate District Office of the Department for a permit modification to reduce the long-term care schedule or eliminate some aspects of long-term care. The Department will grant such modification if reasonable assurance is provided to the Department that there is no threat to human health or the environment and if the landfill meets certain criteria.</p>

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
<p>GEORGIA Department Of Natural Resources Environmental Protection Division www.dnr.state.ga.us</p>	<p>GA Rule 391-3-4</p> <p>Applicability: All MSW landfills.</p> <p>Guidance Document: Release from Five-Year Minimum Post-Closure Care For Solid Waste Facilities Eligible for Five-Year Minimum Post-Closure Care.</p> <p>Applicability: Facilities eligible for consideration of reduction from 30-year post-closure care period to 5-year minimum post-closure care period, i.e. "facilities which are not contaminating groundwater and which cease to accept solid waste prior to being classified as an "existing MSWLF or landfill unit," as defined in Rule .01."</p>	<p>The owner and/or operator of all landfills must conduct post-closure care for at least thirty (30) years after the Director has authorized the Closure Certificate, provided however, that the Director may reduce the post-closure care period to 5 years for those facilities which are not contaminating groundwater and which cease to accept solid waste prior to being classified as an "existing MSWLF or landfill unit", as defined in Rule .01. The Director may extend the post-closure care period where necessary to adequately protect human health and the environment.</p> <p>Requirements include verification that post-closure care activities have been conducted in accordance with the approved Post-Closure Care Plan, verification of the integrity of the final cover, verification that the environmental monitoring systems were adequately designed to detect ground-water and surface water contamination and/or methane migration, and verification of compliance with the Rules for Solid Waste Management, Chapter 391-3-4.</p>
<p>HAWAII Department of Land and Natural Resources Land Division</p>	<p>§11-58.1-17</p>	<p>Per Subtitle D.</p>
<p>IDAHO Division of Environmental Quality www.state.id.us/deg</p>	<p>Idaho Statutes Title 39 Chapter 74 39-7416.</p>	<p>Per Subtitle D.</p>
<p>ILLINOIS Environmental Protection Agency Bureau of Land www.epa.state.il.us/land</p>	<p>APPENDIX F TO LPC-PA2 "Instruction for Closure Plan and Post-Closure Care Plans for Putrescible & Chemical Waste Landfills." Last Modified April 24, 2000</p> <p>Applicability: Not specified</p> <p>35 IAC Section 807.524</p>	<p>Post-closure care plan must, at a minimum, include schedules and monitoring/maintenance criteria for cover, and gas, leachate, and GW monitoring systems. Also cost estimate and criteria for reducing frequency / ceasing inspection / monitoring.</p> <p>The Agency shall certify that the post-closure care period has ended when it determines: (1) That the post-closure care plan has been completed; and, (2) That the site will not cause future violations of the Act or this Part.</p>

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
INDIANA Department of Environmental Management Land Quality www.in.gov/idem	329 IAC 10-23-3 Nonrule Policy Document WASTE-0026- NPD: Post-Closure Uses of Solid Waste Disposal Facilities. Also: Post-Closure Permit Application Guidance (incorporated as noted in 329 IAC 3)	Per Subtitle D. WASTE-0026-NPD presents the current criteria developed by the IDEM to evaluate demonstrations for post-closure use of solid waste disposal facilities as required by 329 IAC 10-23-3. Post-closure use inspection required twice annually, or as specified in the site approved post-closure plan. Guidance on how to prepare and requirements for a post- closure permit application (applies to Hazardous Waste Landfills only).
IOWA Department Of Natural Resources Environmental Protection Division www.state.ia.us/government/dnr/index.html	IAC 567-Chapter 113.26(13) and (14).	These post-closure actions are required for a minimum of thirty years following closure. The Department may extend the monitoring and reporting period if it appears that continued maintenance and monitoring are warranted.
KANSAS Department of Health and Environment Division of Environment Bureau of Waste Management www.kdhe.state.ks.us/waste/solid_waste.html	KAR Article 29 Section 28-29-121. Applicability: Municipal landfills receiving waste on or after October 9, 1991.	Following closure of each MSWLF unit, the owner or operator shall conduct post-closure care. Post-closure care shall be conducted for 30 years, except as provided under paragraph (2) of this subsection. The length of the post-closure care period may be increased by the director if the director determines that the lengthened period is necessary to protect human health and the environment.
KENTUCKY Department for Environmental Protection Division of Waste Management www.nr.state.ky.us/nrepc/dep/waste/dwmhome.htm	401 KAR 48:090 Operating Requirements for Contained Landfills Section 13: Closure and Closure Care Requirements.	“The closure period shall be at least two years following the cabinet’s acceptance of the owner’s certification of closure.” “Maintenance and Operation of the leachate collection system in accordance with the requirements, if applicable, until leachate is no longer generated.”
LOUISIANA Department of Environmental Quality www.deq.state.la.us	LAC 33: Part VII. Applicability: All solid waste facilities.	Per Subtitle D.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
MAINE Department of Environmental Protection Bureau of Remediation and Waste Management www.state.me.us/dep/rwm/homepage.htm	06-096 Solid Waste Management Rules: Chapter 401 Landfill Siting, Design and Operation. Applicability: All MSW landfills.	The licensee shall submit a post-closure monitoring and maintenance plan to the Department as part of the closure plan required in Section 5. The plan must cover a period of at least 30 years following closure unless extended by the Department due to identified threats to public health, safety, or the environment.
MARYLAND Department Of The Environment www.mde.state.md.us	Title 26, Subtitle 04, Chapter 07 of the Maryland regulations.	Per Subtitle D. Pre-Subtitle D landfills are subject to post-closure monitoring and maintenance by the permittee as specified in this regulation, for a period of time not less than 5 years after the complete installation of the landfill cap. This time period may be extended by the Department if significant maintenance situations occur at the landfill during the 5-year period after closure.
MASSACHUSETTS Department of Environmental Protection Bureau of Waste Prevention www.state.ma.us/dep	Guidance document "Guidelines for Determining Closure Activities at Inactive Unlined Landfill Sites", issued July 17, 2000, revised July 6, 2001. Purpose is to clarify closure provisions of 310 CMR 19.000 ("Solid Waste Management Facilities Regulations"). Applicability: Sites closed prior to July 1, 1990 are the focus of these guidelines.	Clarifies 310 CMR 19.000 by providing guidance on procedures and criteria used by MADEP when reviewing requests for site closure. Specifically addresses permitting, materials used during closure, and length of time for closure activities. Per Subtitle D § 19.142(3) provides provisions for shortening the Post-closure care period following a review of relevant information. The review includes a consideration of the quantity and quality of leachate. Groundwater monitoring results, waste characterization, waste stability, design and location of the facility.
MICHIGAN Department Of Environmental Quality www.michigan.gov/deq	1994 PA 451 Part 115.	After the final closure of each unit, the owner and operator of a type II landfill shall conduct post-closure care for not less than 30 years.
MINNESOTA Pollution Control Agency www.pca.state.mn.us/waste/index.html	Minnesota State Rules for Solid Waste Chapter 7035.	Post-closure care must continue for at least 20 years after the date of completing closure. During the post-closure care period, based on the results of sampling, analysis, and other pertinent information, the commissioner may reevaluate and modify the closure document to the extent post-closure care is needed at the facility.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
MISSISSIPPI Department Of Environmental Quality www.deq.state.ms.us/newweb/homepages.nsf	Regulation SW-2: Nonhazardous Solid Waste Management Regulations & Criteria, Section IV "Landfill Requirements" Adopted 1993, amended February 22, 1996 Applicability: MSWLF units that receive waste after October 9, 1991.	Per Subtitle D.
MISSOURI Department of Natural Resources Division of Environmental Quality Solid Waste Management Program www.dnr.state.mo.us/homednr.htm	10 Code of State Regulations - CSR 80-2.030. Landfill Closure Guidance Technical Bulletin. Applicability: Not specified	Per Subtitle D. All owners or operators applying for closure approval must have a department approved closure/post-closure plan.
MONTANA Department of Environmental Quality www.deq.state.mt.us	ARM Title 17 Chapter 50, Subchapter 5.	Per Subtitle D.
NEBRASKA Department of Environmental Quality www.deq.state.ne.us	Title 132 Integrated Solid Waste Management Regulations, Chapter 3. Applicability: MSW landfills accepting waste after October 1, 1993.	Per Subtitle D.
NEVADA Department of Conservation And Natural Resources Division of Environmental Protection ndep.state.nv.us/index.htm	NAC Chapter 444.	Per Subtitle D.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
NEW HAMPSHIRE Department of Environmental Services Waste Management Division www.des.state.nh.us	“New Hampshire Solid Waste Rules”, includes: Env-Wm 2507.03 “Basic Closure & Post-Closure Requirements” and Env-Wm 2507.05 “Post-Closure Inspections, Monitoring, Maintenance, and Reporting Reqs.” Effective October 29, 1997. Applicability: Defined by 40 CFR 258	The post-closure period of a landfill shall be the period of time required to demonstrate the facility has achieved the performance standards specified in Env-Wm 2507.04. Water quality monitoring may be periodically reduced by WMD during post-closure period if conditions at site merit. LCS maintenance and leachate management required until landfill no longer produces leachate. Also requirements for cover repair, slopes, gas system, storm water management, financial assurance, annual reporting (WMD provides “MSW Landfill Post-Closure Inspection Form”).
NEW JERSEY Department of Environmental Protection Division of Solid And Hazardous Waste www.state.nj.us/dep/dshw	NJAC 7:26 Applicability: existing sanitary landfills in operation after January 1, 1982	Per Subtitle D.
NEW MEXICO Environment Department www.nmenv.state.nm.us	20 NMAC 9.1 Applicability: Closure after October 9, 1991.	Per Subtitle D.
NEW YORK Department of Environmental Conservation www.dec.state.ny.us	6 NYCRR Section 360-2.15.	Per Subtitle D. Quarterly inspections and inspections after major rainfall events (5-year storms) shall be performed on all facility components during the minimum 30-year post-closure period, unless specific department approval is given to eliminate some or all of these requirements, to ensure that the facility is functioning as intended.
NORTH CAROLINA Department of Environment and Natural Resources Division of Waste Management www.ehn.state.nc.us	Section 1605.1627 of Solid Waste Management Regulations.	Per Subtitle D.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
NORTH DAKOTA Department of Health Environmental Health Section www.health.state.nd.us/ndhd/environ	33-20 NDAC.	The post-closure plan must address facility maintenance and monitoring activities for a post-closure period of thirty years. The department may require an owner or operator to amend the post-closure plan, including an extension of the post-closure period, and implement the changes. If the permittee demonstrates that the facility is stabilized, the department may authorize the owner or operator to discontinue post-closure activities.
OHIO Environmental Protection Agency www.epa.state.oh.us	Ohio Administrative Code 3745-27-14 Post-closure care of Sanitary Landfills Interoffice Communication on Compliance Monitoring & Enforcement Guidance.” Applicability: Closed landfills	“The Owner/Operator/Permittee license shall conduct post-closure care activities at the sanitary landfill facility for a minimum of thirty years. Required frequency of inspections at closed landfills by EPA inspectors and health department personnel. Changes to the regulations have been submitted which contain comment indication that the director may release the owner operator or permittee from continuing post-closure care provided that demonstrations that requirements are no longer necessary can be made.
OKLAHOMA Department of Environmental Quality www.deq.state.ok.us	252:515	Post-closure shall be performed for 30 years. The Department will not approve the certification of post-closure performance if testing shown the presence of elevated levels of any constituent, if evidence of contamination resulting from site operations is found to exist, if prior maintenance or monitoring of the site is found to be inadequate, if the site is producing leachate which must be treated prior to discharge, or if other conditions are present that indicate a need for additional post-closure monitoring and care.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
<p>OREGON Department of Environmental Quality www.deq.state.or.us</p>	<p>340 Oregon Administrative Rules OAR 094-013(2) per Subtitle D.</p> <p>Solid Waste Landfill Guidance Section 11.</p> <p>Applicability: MSW landfills – differentiated between Subtitle D and non-Subtitle D.</p> <p>Memorandum of Agreement Between The Oregon Department of Environmental Quality, Lane Regional Air Pollution Authority and The United States Environmental Protection Agency Concerning Regulatory Innovation and the Oregon Green Permits Program.</p> <p>Applicability: Facilities regulated by ODEQ.</p>	<p>The post-closure plan should identify and describe the post-closure activities required to properly monitor and maintain the closed landfill site.</p> <p>The Green Permit Program tests the use of regulatory incentives to encourage higher levels of environmental performance and the adoption of environmental management systems (EMS). The program is based on the use of EMSs such as ISO 14001, and a “tiered”, or multi-level system in which greater demonstrated environmental performance is acknowledged with increasing regulatory flexibility and other “benefits” to the facility (including the potential for more effective and efficient permit conditions through modifications or waivers of certain regulatory requirements).</p>
<p>PENNSYLVANIA Department of Environmental Protection www.dep.state.pa.us</p>	<p>Title 25 PA Code Chapter 273, adopted 19 September, 2000.</p> <p>§ 273.191: Post-closure land use plan.</p> <p>§ 273.322: Closure.</p>	<p>Generally per Subtitle D.</p> <p>A permit application shall contain a detailed description of the proposed use following closure of the proposed facility, including a discussion of the utility and capacity of the revegetated land to support a variety of alternative uses, and the relationship of the use to existing land use policies and plans. The description shall explain the following: (1) how the proposed post-closure land use is to be achieved and the necessary support activities which may be needed to achieve the proposed land use; and (2) the consideration which has been given to making the proposed post-closure land use consistent with landowner plans and applicable State and local land use plans and programs.</p>
<p>RHODE ISLAND Department of Environmental Management Office of Waste Management www.state.ri.us/dem</p>	<p>Solid Waste Regulation No. 2.</p>	<p>Post-Closure plan must address requirements for a minimum of thirty years.</p> <p>Leachate treatment or disposal must be addressed for a minimum of 30 years or for as long as leachate is capable of adversely impacting the environment.</p>

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
SOUTH CAROLINA Department of Health and Environmental Control Bureau of Land and Waste Management www.scdhec.net/lwm	Reg. 61-107.258. Applicability: All MSW landfills.	Per Subtitle D.
SOUTH DAKOTA Department of Environmental and Natural Resources www.state.sd.us/denr/denr.html	Chapter 74:27:15.	The owner or operator shall provide post-closure care for 30 years. The board or secretary may grant variances to the provisions of this chapter case by case. Demonstrations for variances for MSWLFs must meet the requirements of 40 CFR. Part 258, as published on 56 Fed. Reg. 50,978 to 51,119, inclusive (October 9, 1991).
TENNESSEE Department of Environment and Conservation www.state.tn.us/environment	Chapter 1200-1-7.	For Class I and Class II disposal facilities, post-closure care must continue for 30 years after the date of final completion of closure of the disposal facility or parcel unless a shorter period is established in the approved closure/post-closure care plan. The post-closure care period may be reduced or extended based on cause by amendment of the approved closure/post-closure care plan as provided in rule 1200-1-7-.03(2)(e).
TEXAS Commission on Environmental Quality www.tceq.state.tx.us	Texas Administrative Code Title 30, Part 1, Chapter 330, Subchapter J.	The executive director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates to the approval of the executive director that leachate no longer poses a threat to human health and the environment. Length of post-closure care period per Subtitle D.
UTAH Department of Environmental Quality www.deq.state.ut.us	Solid Waste Guidance Document Activities on Closed Landfills. Applies to landfills that are regulated under Utah Administrative Code (UAC) R315-302-3 and Utah Solid Waste Permitting and Management Rules (Rules). Applicability: MSW landfills closed after July 15, 1993.	Per Subtitle D.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
VERMONT Agency of Natural Resources Waste Management Division 802-241-3444 www.anr.state.vt.us	State of Vermont Agency of Natural Resources Department of Environmental Conservation Waste Management Division Solid Waste Management Program 10 V.S.A. §6605. Solid Waste Management Rules: Procedure Addressing Post-Closure Care and Post-Closure Certification at Solid Waste Landfills (effective 8 February, 1999).	Generally per Subtitle D, for non-MSWLFs, and MSWLFs which closed prior to October 9, 1993, the closure plan shall contain specifications and estimated costs for 20 years of post-closure care. Post-closure care at a landfill is considered an “operation”, and therefore a facility must be certified, in five years intervals, through the post-closure period. A permittee may make a written request for post-closure care to be terminated at the conclusion of the current certification period. The request must be accompanied by satisfactory demonstration that: (a) the post-closure care requirements contained in the post-closure plan have been completed; and (b) continued post-closure care is unnecessary to protect human health and the environment.
VIRGINIA Department of Environmental Quality www.deq.state.va.us	9 VAC 20-80-250 Effective 23 May, 2001	Per Subtitle D.
WASHINGTON Department of Ecology www.ecy.wa.gov	Ch. 173-351 WAC.	Per Subtitle D.
WEST VIRGINIA Division of Environmental Protection www.dep.state.wv.us	33-01.	Per Subtitle D.
WISCONSIN Department of Natural Resources www.dnr.state.wi.us	Solid Waste Rules (Chapters NR 500 to 520, Wisconsin Administrative Code), established 1988, revised 1996. A Study of the Future of Solid Waste Management: A Report to the Wisconsin Legislature.	Generally per Subtitle D. Regulations State that current post-closure requirements are 40 years of post-closure care and that an evaluation should be conducted to assess the need to increase the 40-year period for new MSW landfills and lateral expansions.

State and Department State Contact	Applicable Regulations/Guidance Site Applicability	Comments
<p>WYOMING Department of Environmental Quality Solid and Hazardous Waste Division deq.state.wy.us</p>	<p>Solid Waste Guideline #16: Landfill Closure and Post-Closure Process.</p> <p>Applicability: All sanitary landfills.</p> <p>Solid Waste Management Rules Chapter 2 - Sanitary Landfill Regulations.</p> <p>Applicability: All MSW Landfills.</p>	<p>Owners can petition the SHWD to terminate the post-closure period earlier if they can demonstrate that the landfill has been stabilized. In all cases, the minimum post-closure period for these facilities is automatically extended until such time that the SHWD approves a petition to terminate the post-closure period. This petition must be accompanied by relevant information and demonstrate that the facility has been stabilized in a manner protective of human health and the environment. Also includes minimum documentation requirements and performance criteria for petition to terminate the post-closure period. Termination of the post-closure period does not release landfill owners and/or operators from future liability related to the site.</p>

Table D2. Common Non-Subtitle D Regulations Applicable to MSW Landfills During the PCC Period

from *Performance-Based System for Post-Closure Care at MSW Landfills*, Environmental Research and Education Foundation, 2006

Statute/Regulation	Applicability
<p>40 CFR Part 60, Standards of Performance for New Stationary Sources Subpart WWW, New Source Performance Standards (NSPS) Subpart CC, Emissions Guidelines (EG) for MSW landfills Subpart GG, Standards for Performance for Stationary Gas Turbines</p> <p>40 CFR Part 62, Subpart GGG, Federal Plan for the EG 40 CFR Part 63, Subpart AAAA, Draft Maximum Achievable Control Technology (MACT)</p> <p>National Emissions Standards for Hazardous Air Pollutants (NESHAPS) 40 CFR Part 51.165, Review of New Sources and Modifications 40 CFR Part 52.21, Prevention of Significant Deterioration</p>	<p>These regulations may apply to the gas module.</p> <p>NSPS requires that best available technologies (BAT) are used to control emissions from specific sources, including MSW landfills. Guidelines for EG rules are to be developed by State or Local agencies. Subpart GG only applies at sites with LFGTE.</p> <p>40 CFR Part 62, Subpart GGG applies in jurisdictions that did not get their EG rules done in time or for Federal lands. 40 CFR Part 63, Subpart AAAA establishes MACT standards for MSW landfills.</p> <p>NESHAPS includes MACT regulations affecting landfills. Permitting regulations relating to air quality (installation of BACT, ambient monitoring, and air dispersion monitoring) that can apply to MSW landfills.</p>
<p>40 CFR Part 403, General Pretreatment Regulations for Existing and New Sources of Pollution</p> <p>40 CFR Part 122, National Pollutant Discharge Elimination System (NPDES) (40 CFR Parts 123, 124, and 125 are related)</p> <p>Sector L: Landfills and Land Application Sites, Multi-Sector General Storm Water Permit for Industrial Activities (Federal Register Volume 65 No. 210, October 30 2000, page 54746)</p> <p>40 CFR Part 122.26(g), No Exposure Exclusion</p>	<p>These regulations may apply to the leachate, groundwater and/or cap module(s).</p> <p>Specify requirements for pre-treatment prior to discharges to publicly owned treatment works (POTW). This requirement may be applicable if leachate is treated by a POTW, or if groundwater is discharged to a POTW (e.g., during corrective action).</p> <p>These requirements may be applicable to off-site leachate discharges or if an on-site leachate treatment system exists. These requirements are typically related to stormwater discharges to surface water, which relates to the cap module.</p> <p>Provides stormwater control requirements and monitoring and sampling requirements for stormwater under permit conditions (and mechanisms for waiver of requirements).</p> <p>If a condition of no exposure exists at a landfill regulated under the NPDES Stormwater Program, then permits are not required for stormwater discharges</p>

<p>40 CFR Part 122.26 (b) (16) Stormwater Phase II – Stormwater Discharges Associated with Small Construction Activity - Construction General Permit</p>	<p>if a certification is submitted to the permitting authority (EPA or State agency with authority).</p> <p>Requires permits for land disturbance of equal to or greater than one acre</p>
<p>40 CFR Part 445, Landfill Point Source Category: Subpart B, RCRA Subtitle D Non-Hazardous Waste Landfills</p>	<p>The regulations establish maximum daily and monthly average effluent limitations attainable by the application of best practicable control technology currently available (BPT) or best conventional pollutant control technology (BCT) for MSW landfill point sources. These standards apply to surface water discharges.</p>
<p>40 CFR Part 141, National Primary Drinking Water Regulations 40 CFR Part 143, National Secondary Drinking Water Regulations (40 CFR Part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants, is related)</p>	<p>Part 141 establishes maximum contaminant levels (MCLs) for drinking water. Part 143 establishes secondary drinking water standards (SDWS). These regulations thus establish contaminant specific concentration limits in water and are often used as criteria for evaluating groundwater.</p>
<p>Safe Drinking Water Act Section 1453 – Source Water Protection Program</p>	<p>Requires States to develop programs to assess land use impacts to public water supplies and to implement management measures to protect drinking water quality.</p>

Table D-3. EPA and Other Relevant Guidance Documents Potentially Applicable to Post-Closure Care at Subtitle D Landfills
 from *Performance-Based System for Post-Closure Care at MSW Landfills*, Environmental Research and Education Foundation, 2006

Document	Applicability
<p><i>Landfill Gas Emission Model: User's Manual</i> (Ver. 2.0) U.S. EPA Control Technology Center (EPA, February 1998)</p>	<p>Provides guidance for use of the Landfill Gas Emissions Model (LanGEM) that is used to calculate emission rates for methane, carbon dioxide, and hazardous air pollutants from MSW Landfills.</p>
<p><i>Methods for Evaluating the Attainment of Cleanup Standards, Vol. 2: Groundwater</i> U.S. EPA Office of Policy, Planning, and Evaluation (EPA, July 1992)</p>	<p>Describes methodologies to evaluate groundwater remedies, although some of the methods described may be applicable to demonstrate continued protection of groundwater quality will occur at a MSW landfill.</p>
<p><i>Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action</i> U.S. EPA Office of Solid Waste and Emergency Response (EPA, September 2002)</p>	<p>Guidance for understanding EPA policies on protecting and cleaning up groundwater at RCRA facilities. Although this document is intended for application at Subtitle C (i.e., hazardous waste facilities), many policies and procedures can be applied to groundwater issues at Subtitle D facilities.</p>
<p><i>Economic Analysis of Final Effluent Limitations: Guidelines and Standards for the Landfills Point Source Category</i> (EPA, November 1999)</p>	<p>Assesses the economic impact of the final effluent limitation guidelines and standards for the landfills industry point source category. The two major sources of information for this analysis were 1) data on industry baseline financial and operating conditions, and 2) projected costs of complying with the rule.</p>
<p><i>Environmental Assessment for Final Effluent Limitations and Discharge: Guidelines and Standards for the Landfills Point Source Category</i> (EPA, January 2000)</p>	<p>This environmental assessment quantifies the water quality-related benefits associated with achievement of the Best Available Technology (BAT) limitations promulgated by EPA to regulate nonhazardous landfills. Using site-specific analyses of current conditions and changes in discharges associated with the regulation, the EPA estimated instream pollutant concentrations for 26 priority and non-conventional pollutants from direct discharges using stream dilution modeling.</p>
<p><i>Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain on Site</i> U.S. Department of Energy (DOE, October 1999)</p>	<p>Describes procedures used to develop closure and post-closure care requirements at DOE facilities. States that the crucial aspect of devising an effective monitoring approach is identifying when monitoring and maintenance activities need to be changed or can be reduced. Decision rules are a tool for defining criteria or boundaries for decreasing monitoring requirements. The post-closure core team will determine when monitoring and maintenance activities can be reduced.</p>

Document	Applicability
<p><i>Risk Assessment Guidance for Superfund (RAGS)</i> U.S. EPA Office of Emergency and Remedial Response (EPA, 1989)</p>	<p>These manuals were developed for use in the remedial investigation/feasibility study (RI/FS) process at Superfund sites, although the analytical framework and specific methods described in the manuals may also be applicable to other assessments of hazardous wastes and hazardous materials. These manuals are companion documents to EPA's <i>Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA</i> (October 1988), and users should be familiar with that guidance.</p>
<p><i>RBCA Fate and Transport Models: Compendium and Selection Guidance</i> ASTM (ASTM, 1999)</p>	<p>This guidance document catalogs and describes non-proprietary fate and transport models that are readily available and in common use for risk-based corrective action (RBCA) at the time of publication. It is meant to function as a compendium and resource guide, assisting the user in the model selection process.</p>
<p><i>Close Out Procedures for National Priorities List Sites</i> U.S. EPA Office of Solid Waste and Emergency Response (EPA, January 2000)</p>	<p>The purpose of the guidance is to briefly summarize key elements of the various close out options for actions at sites.</p>
<p><i>Introduction To AP-42, Vol. 1, 5th Ed., Chapter 2, "Solid Waste Disposal," Section 4, "Municipal Solid Waste Landfills"</i> U.S. EPA Office of Air Quality Planning and Standards (EPA, November 1998)</p>	<p>Provides guidance for estimating air emissions from Solid Waste Disposal facilities including MSW landfills.</p>
<p><i>A National Roadmap for Vadose Zone Science and Technology: Understanding, Monitoring, and Predicting Contaminant Fate and Transport in the Unsaturated Zone, Addendum #1, "Documentation of Stakeholder Involvement"</i> Idaho National Engineering and Environmental Laboratory (DOE, August 2001)</p>	<p>This roadmap is a means of achieving a reasonable scientific understanding of how contaminants of all forms move in the vadose zone. This understanding is needed to reduce the present uncertainties in predicting contaminant movement, which in turn will reduce the uncertainties in remediation decisions. The technical content of the roadmap is captured in 61 activities. Each activity represents an area for which critical research objectives and application requirements can be clearly stated.</p>
<p>"RCRA, Superfund, and EPCRA Call Center Training Module: Introduction to Closure/Post-Closure," 40 CFR Parts 264/265, Subpart G (EPA, October 2001)</p>	<p>This document is used to train call center workers in making sure they know the difference between closure and post-closure and how to apply the appropriate regulations when assisting call center callers.</p>
<p>"RCRA, Superfund, and EPCRA Call Center Training Module: Introduction to Groundwater Monitoring," 40 CFR Parts 264/265, Subpart F (EPA, October 2001)</p>	<p>This document is used to train call center workers in making sure they understand the standards and specific requirements for groundwater monitoring programs at interim status and permitted facilities.</p>

Document	Applicability
<p>“RCRA, Superfund, and EPCRA Hotline Training Module, Introduction to Other Laws that Interface with RCRA” U.S. EPA Office of Solid Waste and Emergency Response (EPA, October 1999)</p>	<p>Provides a summary of how other Federal environmental laws and regulations apply to RCRA facilities.</p>
<p><i>Decision Tool For Landfill Remediation</i> Air Force Center for Environmental Excellence (USAF, August 1999)</p>	<p>This report traces the overall remedial decision process for landfills through flowcharts, textual descriptions, of the process, and explanatory notes that accompany the flowcharts. In addition, this report identifies both the process requirements and the opportunities for selecting cost-effective alternative solutions based on site-specific factors, regulatory requirements, and current guidance.</p>
<p><i>Landfill Covers for Use at Air Force Installations</i> Air Force Center for Environmental Excellence (USAF, August 1999)</p>	<p>A primary objective of this report is to provide state-of-the-art information and references from the current literature on the governing regulations, selection, design, and construction of landfill covers. This material will help identify more cost-effective approaches and reduce remediation costs.</p>
<p><i>Vegetated Landfill Covers and Phytostabilization: The Potential for Evapotranspiration-Based Remediation at Air Force Bases</i> Air Force Center for Environmental Excellence (Hauser and Gimon, 2001)</p>	<p>This document includes a map of the US showing regions in which the ration of potential evapotranspiration (PET) to precipitation suggests that a alternative capping system would be successful.</p>
<p><i>Assessment and Recommendations for Improving the Performance of Waste Containment Systems</i> (EPA, December 2002)</p>	<p>This broad-based study addressed three categories of issues related to the design, construction, and performance of waste containment systems used at landfills, surface impoundments, and waste piles, and in the remediation of contaminated sites. The categories of issues addressed are geosynthetics, natural soils, and field performance.</p>
<p><i>Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites</i> (EPA, September 2002)</p>	<p>This document recommends statistical methods for characterizing background concentrations of chemicals in soil and determining statistically significant difference between background samples and site related contamination. It is intended to supplement guidance included in EPA RAGS Vol. 1.</p>
<p><i>Municipal Solid Waste Landfill Strategy</i> (EPA, May 2002)</p>	<p>The EPA’s Office of Solid Waste and Emergency Response (OSWER) has developed this strategy for Municipal Solid Waste Landfills in order to set out the agency’s priorities and initiatives for its municipal solid waste landfill (MSWLF) program over the next five years. The priorities that OSW identifies in this Strategy include landfill studies, regulatory changes to the Federal MSWLF rules, and the development or revision of technical and guidance manuals.</p>

Document	Applicability
<p>U.S. Environmental Protection Agency State RCRA Vision Workgroup, on the draft white paper “Beyond RCRA: Prospects for Waste And Materials Management in the Year 2020” (EPA, January 2002)</p>	<p>This paper is intended to provoke discussion and facilitate a public dialogue to explore possible directions for the mid- to long-term future of the RCRA program. The primary focus of the RCRA Vision Paper is to suggest broad outlines for what the program of the future might look like, and the forces that might shape it unconstrained by the current legal and institutional structure.</p>
<p><i>Comprehensive Stewardship Plan</i> Fernald Environmental Management Project (DOE, August 2001)</p>	<p>Stewardship is necessary to ensure that all remedial efforts employed continue to be effective and protective of human health and the environment following the completion of site remediation. Developing a plan prior to closure allows for improved management of site closure both before and after site remediation is complete. It also allows for more accurate development of a baseline scope, schedule and cost for</p>
<p>“Standards for Owners and Operators of Hazardous Waste Treatment, Storage, or Disposal Facilities, 40 CFR 264.90-99) (EPA, 2002)</p>	<p>Not applicable to Subtitle D facilities, but outlines requirements for groundwater monitoring programs that may be transferable.</p>
<p><i>An Analysis of Performance-Based Systems for Encouraging Innovative Environmental Technologies (Case Studies)</i> Interstate Technology and Regulatory Council Policy Work Team (ITRC, December 1997)</p>	<p>This reports presents information on the various mechanisms that are being used by State and Federal agencies in applying performance-based standards to enhance clean up of contaminated sites as well as lowering the cost.</p>
<p><i>Technology Overview Using Case Studies of Alternative Landfill Technologies and Associated Regulatory Topics</i> Interstate Technology and Regulatory Council Alternative Landfill Technologies Team (ITRC, March 2003)</p>	<p>This document compiles case studies to present an overview of alternative covers being used at MSW and hazardous waste facilities and will be used to support the ITRC ALT Team’s forthcoming technical/regulatory guidance document on alternative landfill covers. A key aim of the case studies is to present examples of the flexibility used in the regulatory framework for approving alternative covers. The document includes a section on the development and potential application of the Ending Post-Closure Care Model.</p>
<p><i>Optimization of Groundwater Monitoring Constituents for Detection Monitoring Programs for RCRA Waste Disposal Facilities</i> ASTM D7045-04 (ASTM, 2004)</p>	<p>Provides a general method for selecting effective constituents for Detection Monitoring programs at RCRA waste disposal facilities taking into consideration physical and chemical characteristics of the source, the hydrogeological setting, and site-specific geochemistry.</p>
<p><i>Long-Term Stewardship Science and Technology Roadmap</i> (DOE–INEEL, March 2002)</p>	<p>The mission of DOE’s Long-Term Stewardship Program is to manage residual risks and reduce future environmental liabilities associated with the government’s continuing operations at many DOE sites. Advances in science and technology will be needed to fulfill this stewardship commitment. The Idaho National Engineering and Environmental Laboratory (INEEL) has been directed by DOE to facilitate a national road-mapping process that will provide the scientific consensus for future research investments in the area of long-term stewardship.</p>

Document	Applicability
<p><i>Groundwater Technical Enforcement Guidance Document (TEGD)</i> OSWER-9950.1 (EPA, 1986)</p>	<p>The TEGD was distributed by the Office of Waste Programs (OWPE) and specifically addresses RCRA groundwater monitoring.</p>
<p><i>RCRA Ground-Water Monitoring: Draft Technical Guidance</i> (EPA, November 1992)</p>	<p>This manual has been developed by the Agency to update and supplement information contained in the <i>TEGD</i>.</p>
<p>“Ready for Reuse” Corrective Action (CA) Measure and Certification,” RCRAinfo database code CA800 (EPA Region 6, September 2002)</p>	<p>Ready for reuse is a new measure of remedial progress in the corrective action process. It is intended to be a cross-programmatic benchmark for cleanup programs and is a technical determination that recognizes when a property has been characterized and remediated to the extent that its condition is protective for redevelopment or revitalization based on current or planned reuse. First certificate was issued on 2 July 2002 at the Sheffield Steel Corp. facility in Sand Springs, OK.</p>
<p><i>Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soil</i> (EPA, November 2002)</p>	<p>Makes the following changes to the EPA’s CA program under RCRA: (i) environmental indicators (EIs) reflect current as opposed to future or potential conditions, so agencies do not need to consider future land uses in determining whether a site meets EIs for vapor intrusion; and (ii) the risk level set by the agency for carcinogenic exposures is different than the default risk level used in other contexts.</p>

Appendix E

Logic and a Corresponding General Methodology for Statistical Comparisons in PCC Monitoring Programs

Appendix F

Case Studies

Appendix G

Response to Comments

Appendix H

ITRC Contacts, Fact Sheet, and Product List

