

Agency of Natural Resources
Department of Environmental Conservation
Waste Management Division
Solid Waste Management Program

Procedure Addressing Completion of Post Closure Care for Solid Waste Disposal Facilities

July, 2013

A. Introduction:

The Solid Waste Management Rules, first adopted on February 1, 1989, included landfill closure and post closure requirements that applied to all landfills operating as of that date. Depending on circumstance, administrative orders, assurances of discontinuance, and post-closure certifications have been employed to condition post-closure care for both unlined and lined, closed solid waste landfills. Closure and post-closure requirements are intended to physically protect human health and the environment from threats from closed landfills. Post-closure care (PCC) also includes the evaluation of long term monitoring data to determine when emissions from a landfill cease to pose a threat to human health and the environment at a point of exposure. In 2010, 10 VSA §6605(I) was added to statute, allowing the Agency of Natural Resources to adopt rules for post-closure care which would relieve the requirement for post-closure certification. Until such time as these rules are promulgated, post-closure care, if required, shall continue to be conditioned by certification. If further PCC is not required, a written notification from the Secretary will be issued. This Procedure is intended to serve as interim governance of the process by which landfill post closure care may be deemed complete.

For Vermont landfills, the post-closure care period established for financial planning purposes is dependent on whether the Federal RCRA Subtitle D regulations (40 CFR Part 258) apply:

- 20 year post closure care period: MSW landfills that were operating as of February 1, 1989, but ceased operating as of October 9, 1993, are subject to a 20-year post-closure care planning period established as policy in 1989 by the ANR and subsequently incorporated in the Post-Closure Procedure.
- 30 year post closure care period: MSW landfills existing as of February 1, 1989, and that received waste after October 9, 1993, and all new MSW landfills that received waste after October 9, 1991, are subject to the US EPA's Part 258 requirements, which include a 30 year post-closure care planning period.

This procedure is applicable to closed unlined landfills subject to the 20-year post closure care planning period and those more recently operated landfills subject to Part 258 requirements, including the 30-year post closure care planning period. However, the demonstration necessary for the Secretary to consider (outlined in B., below) ending post closure care (PCC) for lined landfills, must include a performance based evaluation to determine when the landfill does not pose a threat to human health and the environment. An example of such an evaluation is provided in the September 2006 ITRC technical/regulatory guideline titled "Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based On Site-Specific Data Evaluations." <http://www.itrcweb.org/documents/alt-4.pdf>

B. Demonstration that the post-closure requirements have been completed:

§6-1003(h) of the March 15, 2012 Solid Waste Management Rules states:

(h) Upon the satisfactory demonstration by the certification holder that the post-closure care requirements have been completed in accordance with the approved post-closure plan, the Secretary shall, at the request of the certification holder provide a written notification of the completion of post-closure care.

1. In order for PCC to be considered completed, the owner/operator must submit a written request and accompanying documentation to the Secretary that demonstrates that the landfill is stable and will not be a threat to human health or to the environment without further maintenance or monitoring beyond that required by the Custodial Care (CC) provisions outlined in Section C. The documentation must be prepared under the direction of professional engineer licensed in the State of Vermont, and address, at a minimum, groundwater quality, landfill gas emissions, leachate management (if applicable), settlement, vegetation, final cover system integrity, surface water conveyance systems, end use, and the appropriate land use restrictions and institutional controls. The Secretary may require submittal of additional information, not specifically outlined above, in order to issue a determination on PCC. The owner/operator shall provide written notification to all adjoining landowners that a request to cease active post-closure care has been made.

At a minimum, the following criteria will be used by the Secretary to evaluate a request for a determination of completion of post closure care:

- a. Groundwater
 - i) Groundwater monitoring data must demonstrate that concentrations of contaminants attributed to the facility are stable, decreasing, or non-detectable over the most recent 5-year period;
 - ii) Contaminant concentrations in groundwater at the point of compliance have not been determined to currently reach or exceed a Groundwater Enforcement Standard (GWES), by the methodology outlined in §12-706 of the Groundwater Protection Rule and Strategy. Or in the absence of a GWES, a US EPA Maximum Contaminant Level (MCL), or a Vermont Health Advisory (VHA); and
 - iii) All groundwater monitoring wells to be abandoned are to be properly closed in accordance with §12.3.5 of Appendix A of the Vermont Water Supply Rule.
- b. Landfill gas (if monitored)
 - i) Representative data should demonstrate that methane concentrations in monitoring wells are stable, decreasing, or non-detectable over the most recent 5-year period;
 - ii) Data shall demonstrate that methane concentrations do not, and will not in the future, exceed 25% of the Lower Explosive Limit (LEL) at the property line or in facility buildings;
 - iii) Active gas control systems can be discontinued without causing noncompliance with (a) and (b) above; and
 - iv) Landfill emissions shall not result in objectionable odors off site of the facility.
- c. Leachate (if collected)
 - i) Representative data should characterize both leachate quality and quantity, and demonstrate that concentrations of contaminants are stable, decreasing, or non-detectable over the most recent 5-year period;
 - ii) Contaminant concentrations in collected leachate have not been determined to currently exceed a Groundwater Enforcement Standard (GWES), or in the absence of GWES, a US EPA Maximum Contaminant Level (MCL), or a Vermont Health Advisory (VHA), for a minimum of two consecutive semi-annual monitoring events; and
- d. Settlement
 - i) Evidence that the waste decomposition, and associated settlement rates are negligible and shall not compromise the integrity or performance of the final cover system.
- e. Vegetation
 - ii) Evidence that the vegetative cover, established during facility closure, is uniformly well established, stable, and resistant to erosion.

- f. Surface water system
 - i) Evidence that the surface water diversion system shall continue to prevent surface water flow onto the capped landfill during the peak discharge from a 25-year, 24-hour storm event; and
 - ii) That any surface water discharge from the facility does not violate Vermont Water Quality Standards, or any requirements of the Clean Water Act, including National Pollutant Discharge Elimination System (NPDES) requirements pursuant to Section 402.
- g. Corrective Action
 - i) Evidence that the certification holder has successfully performed any mandated corrective actions, including waste removal, structural improvements, or groundwater remediation, which may include monitored natural attenuation.
- h. End Use
 - i) The end use for the facility is identified and will not pose a threat to human health or the environment.

Institutional Controls

- i) Evidence that institutional controls, such as deed restrictions and access controls are in place, and Custodial Care (as described in Section C) is planned for.
2. The Secretary shall review the documentation and if upon finding that the facility does not pose an unacceptable threat to public health and the environment, a written notification of completion of active post-closure shall be issued. If this finding cannot be made, the Secretary will notify the owner/operator, and the notification will include the basis for denying the completion of post closure care. The Secretary shall require the continuation of PCC at the current level, or shall modify PCC, and/or require corrective action¹, and/or reclassification of groundwater².

Alternatively, at the owner/operators request, the Secretary may allow for a modification of specific PCC activities, if the modification does not increase the threat from the facility to human health and safety, or to the environment, jeopardize the transition from post-closure care to custodial care, or compromise the ability to evaluate data or facility impacts, such as:

- a) Modifications to sampling frequency
 - i) If contaminant trends indicate that GWES attributable to the landfill will not be reached in during the current certification or the next five years, whichever is longer, the owner/operator may request reduction in the frequency of sampling. Not to decrease below one sample annually.
- b) Modifications to sampling analytes
 - i) If particular analytes have historically been non-detectable or trace, the owner/operator may request no longer sampling for these contaminants or a reduction (see 1.a above).
- c) Modifications to monitoring well network
 - i) If it is determined that the monitoring well network is deficient, employs redundant wells, or is not offering an accurate representation of the true hydrogeologic conditions of the site, the owner/operator may request modifications to the monitoring well network. Modifications may include; well rehabilitation, well replacement, well abandonment, or the addition of new wells in better locations.

- d) Discontinuation of modification of corrective actions.
 - i) If it is determined that correction actions, including waste removal, structural improvements, or groundwater remediation, have met objectives, the owner/operator may request discontinuance or modification of some of the actions.

C. Custodial Care Beyond the End of the Post Closure Care Period:

1. Landfill owners and operators have a legal responsibility to prevent future releases, restrict exposure to contaminants, and continue to mitigate any threats to human health or the environment, including any which occur after the regulated post-closure care period. Written notification from the Secretary of completion of post-closure care requirements in accordance with §6-1003(h) does not relieve an owner/operator from taking necessary corrective actions to protect human health and the environment, and the Secretary maintains the authority to compel such actions under 10 V.S.A. §6615.
2. Landfill owners and operators should also be aware that a written notification of the completion of closure and post closure care does not control potential liability to third parties resulting from releases which occur during the operating life, closure period, post closure period or any time thereafter.
3. Custodial Care (CC) is the proper and responsible management of the end-use obligations, as determined in the post closure plan, consistent with local and state land use policies and procedures. CC requires de minimus site management and care activities, including preserving cap integrity, abiding by end use obligations, maintaining institutional controls, controlling access, and satisfying local ordinances. The landfill owner will not be required to show evidence of financial responsibility for custodial care. Beneficial uses of the closed landfill or property are acceptable, but proposed modifications to the end use require prior approval by the Secretary, and any use of the land during this CC period must not disturb the integrity of any of the waste containment systems.
4. The transition from PCC to CC occurs once the owner has received written notification from the Secretary of the completion of post-closure care under 6-1003(h) of the Solid Waste Management Rules.
5. The Agency of Natural Resources recommends that landfill owners maintain a minimal inspection and documentation program once the facility has complied with the state's closure and post-closure regulatory program.

Recommended annual activities include:

- a) Ensuring and documenting access control;
- b) Ensuring and documenting integrity of landfill cap system (i.e., no erosion, no exposed waste, semi-annual mowing to prevent woody vegetative growth, etc.)
- c) Ensuring and documenting institutional controls are appropriately maintained;
- d) Ensuring and documenting that the management of the closed landfill and the property will be consistent with its intended end use.

¹ See "Procedure Addressing Corrective Action and Financial Responsibility for Corrective Action at Solid Waste Landfills," dated February 8, 1999.

<http://www.anr.state.vt.us/dec/wastediv/solid/pubs/Corrective%20Action.pdf>

² See "Procedure for Class IV Groundwater Reclassification," dated November 12, 2000.


<http://www.vermontdrinkingwater.org/GWPRS/ClassIVProcedures2000.pdf>

Effective Date

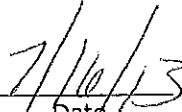
This Procedure is effective upon date of Signature.

David K. Mears, Commissioner
Department of Environmental Conservation

by



Alyssa Schuren, Deputy Commissioner
Department of Environmental Conservation



Date

