



Policy Title: **End of Post-Closure Care for Solid Waste Sites and Facilities**

Program(s) Initiating the Policy: **Solid Waste and Materials Management Program**

Program(s) Subject to the Policy: **Solid Waste and Materials Management Program**

Regulatory Citations: **6 CCR 1007-2, §§2.6, 3.6 and 17.6**

Policy Purpose:

The Colorado Regulations Pertaining to Solid Waste Sites and Facilities (the Regulations) require facility owners and/or operators to perform long-term post-closure care and maintenance when landfills or other solid waste units that leave waste and/or contamination behind close. The purpose of this policy is to define the criteria by which the Department will determine that post-closure care and maintenance may end at landfills and other solid waste units where wastes and/or contamination remain after closure.

Policy:

The Regulations, in sections 2.6, 3.6, and 17.6, establish requirements for post-closure care and maintenance for landfills and other units where solid wastes and/or contamination will remain after closure. These requirements ensure ongoing protection of human health and the environment until such time as the solid waste is removed, the solid waste becomes non-toxic, or the solid waste has been demonstrated to be stable, secure, predictable, and isolated such that the risk of releases from the landfill or other unit is very low.

These same regulations note that post-closure care and maintenance must be conducted for a minimum of 30 years, but that 30-year period may be shortened or lengthened by the Department after consultation with the local governing body having jurisdiction if it is determined that a shorter time is sufficient, or a longer period is needed, to protect human health and the environment.

The following sections define a) the criteria that the Division will use to evaluate whether post-closure care and maintenance may end, and b) how financial assurance for post-closure care will be implemented.

A. Criteria for Ending Post-Closure Care and Maintenance

Post-closure care for solid waste landfills and other units where solid wastes and/or contamination remain after closure may end when one of the following two conditions is satisfied:

1) The landfill or other unit is “clean closed” by removing all solid waste and any associated contamination; or

2) The Department approves, in accordance with 6 CCR 1007-2, sections 2.6, 3.6, or 17.6, a proposal to end post-closure care after completing a performance-based evaluation that considers all relevant landfill or other unit design and environmental factors to determine that the solid waste unit is stable, secure and will be protective of human health and the environment for the long term. The data and site information to be evaluated include, but are not limited to, the following:

- Leachate monitoring results and generation rates;
- Ground water monitoring results;
- Explosive gas monitoring results;
- Hydrogeologic characteristics of the formations beneath and around the unit;
- Characteristics of the solid waste remaining in the unit – toxicity, mobility, the potential for waste or constituents to migrate from the regulated unit; bioavailability, gas generation capability, etc.;
- Overall design of the unit to minimize long-term maintenance, resist the generation of leachate and contain the waste in perpetuity;
- Results of routine facility inspections;
- Maintenance history for engineered features, such as landfill cover;
- History of management and maintenance of the unit (including cap and liner); and
- End–use strategy and the Environmental Covenant or other enforceable mechanism ensuring the continued care of the property.

The Department retains complete discretion to approve or disapprove any proposal to end post-closure care. The guiding principle the Department will consider as part of any request for terminating post-closure care is whether a site has demonstrated stability to the point where only minimal maintenance is necessary going forward in order to ensure the waste left behind remains in a safe condition. Minimal maintenance activities, such as repair of minor erosion rills and reseeded, could theoretically be handled through another, less intensive regulatory mechanism than a post-closure care plan (see the Environmental Covenant Section below). To consider a site eligible to end post-closure care, the Department will require a history of favorable environmental monitoring results, satisfactory performance of engineered features at the site and a demonstration of low maintenance associated with those features. The more data that a facility owner or operator is able to provide in support of a request to end post-closure care - such as years of environmental monitoring and documented, routine post-closure inspections - the greater the likelihood that such a request would gain Department approval. At a minimum, the Department will evaluate the following items when considering a proposal to end post-closure care:

- Certification by a Colorado professional engineer that post-closure care has been completed in accordance with the post-closure care plan;

- The amount of leachate has declined to de minimus levels, or the leachate characteristics have been shown through sampling results to qualify for a permit from the Water Quality Control Division to allow passive discharge of the leachate;
- Explosive gas generation has reduced to the point where neither monitoring nor engineering controls are necessary to protect human health and the environment;
- There have been no releases from the unit in the past, or if a release did occur, corrective measures were implemented successfully and subsequent monitoring shows no evidence of a reoccurrence;
- The waste in the regulated unit is, and will continue to be, stable, secure, predictable, and isolated;
- The unit configuration and design, the unit location, and the local geology and hydrology ensure a release or exposure to the waste is unlikely;
- No maintenance is required to prevent the migration of, or exposure to, the waste;
- The institutional controls in the Environmental Covenant or other enforceable mechanism would ensure the preceding conditions would continue in perpetuity; and
- Even if a release were to occur from the unit in the future, the anticipated impact to human health and the environment would be minimal and may not justify an active response.

Any proposal to shorten the post-closure care period must be accompanied by adequate data to demonstrate the anticipated long-term performance of the unit. To account for cyclic fluctuations in weather and hydrology, no less than 10 years of performance data are required. To be clear, if the above conditions are demonstrated to be met in a time-period shorter than 30 years, the post-closure care period can be shortened, as appropriate, with approval of the Department (after the Department's consultation with the local governing body). However, the Department also has discretion to lengthen the post-closure care period as deemed necessary to protect human health and the environment. The above conditions are meant to provide examples of factors that the Department will consider in making determinations regarding the end of post-closure care. The list not meant to be comprehensive or all-inclusive. Other site specific factors could apply to an individual case under consideration. At the conclusion of the initial 30-year post-closure care period, the Department will evaluate the site and then make a determination on the need for further post-closure care activities to be conducted under the post-closure care plan. If it is determined that a continuation of post-closure care under the post-closure care plan is necessary, then the Department will require appropriate post-closure care to continue until such time as protection of human health and the environment no longer warrants these measures, no matter how long that may take.

It is important to note that if there are ongoing corrective action obligations in other areas of the facility, the Department will not consider terminating the facility's overall regulatory status until those requirements are satisfied, regardless of whether the post-closure care period for the regulated unit(s) has ended.

B. Institutional Controls

If the Department concludes that the formal schedule of monitoring and maintenance activities prescribed under a site's post-closure care plan is no longer necessary, the post-closure care period for a site may end upon written approval by the Department. It is important that owners and operators understand what the end of formal post-closure care means and what it does not mean. The approval to terminate post-

closure care brings to an end the formal routine environmental monitoring and maintenance activities under the post-closure care plan (required by the Solid Waste Regulations). Essentially, the post-closure care plan, and its associated, prescriptive monitoring and maintenance regimen, is no longer in effect. However, the site will remain subject to some degree of custodial care and, in most cases, subject to an institutional control. Most commonly, this institutional control takes the form of an environmental covenant. The Environmental Covenant may specify site management and care activities including meeting end-use obligations, maintaining institutional controls, controlling access, and fulfilling other applicable requirements that collectively will ensure that the waste management unit does not pose a threat to human health and the environment. Future land uses must be consistent with the restrictions in the Environmental Covenant. If the property owner desires to change land use in a manner prohibited by the Environmental Covenant, he or she must first seek modification or termination of the covenant as outlined in §25-15-319(h).

In addition to owner responsibility, there is also regulatory control associated with the environmental covenant. As part of responsibility under the environmental covenant, the property owner is required to certify to the Department annually that the property is in continued compliance with the use restrictions imposed by the environmental covenant. Additionally, Department staff inspect environmental covenant sites on a regular schedule.

C. Financial Assurance for Post-Closure

Financial assurance assures that funds will be available whenever needed for the adequate post-closure care and maintenance of solid waste facilities. Should the owner or operator of a facility in post-closure become financially non-viable, the Department will use the financial assurance monies to continue to meet the conditions of post-closure.

Therefore, all solid waste facilities needing to implement post-closure care must initially provide enough financial assurance to provide for 30 years of post-closure care, maintenance, and monitoring. This amount can be adjusted as follows:

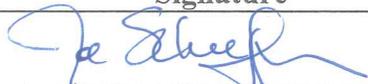
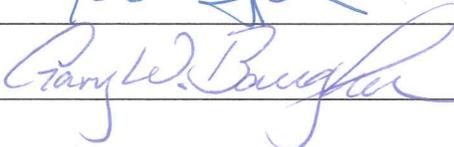
1. If the Department finds that the post-closure period may end before the initial 30-year period has elapsed because the landfill or other unit meets the conditions in Section A, then the financial assurance may be terminated at that point.
2. If the Department finds that the post-closure liability of the owner/operator has legitimately decreased, then the amount of financial assurance can be decreased as approved by the Department. Liability decreases may include, but not be limited to, a) discontinuing certain active components of a remedy because they are no longer necessary, b) certain units or areas in post-closure now meet the conditions in Section A, but not all areas; c) discontinuing monitoring for certain constituents, but not others, because those constituents are no longer of concern; or d) a situation where the only ongoing post-closure liability is cap maintenance and ground water monitoring. In the case of d), the amount of financial assurance can be annually decreased such that by the end of the last year of required cap maintenance and/or ground water monitoring, the amount of financial assurance has been reduced to zero.

Important Note: The Department believes that post-closure responsibilities at many closed landfills and other solid waste units where waste and/or contamination remains after closure will not be able to end in 30 years. This could be due to any number of factors, but will include the Department's determination

that the waste in the unit is not stable or secure such that that isolation of the waste in the unit must be actively ensured. Therefore, the post-closure care period will be extended pursuant to sections 3.6.3 and 17.6.3 of the Regulations. In many cases, it will be clear that more than 30 years of post-closure care will be needed right from the beginning of closure. When that is the case, the Department will require a continuation of the full 30-year financial assurance amount for all components of post-closure care that will extend beyond the initial 30-year period until such time as the Department believes that the unit(s) will be able to meet the conditions in Section A in less than 30 years.

This policy is: (check one)

New _____ Replacement: _____

Title	Signature	Date
Solid & Solid Waste Program Manager		7/8/16
HMWMD Division Director		7/19/16

