

**CHAPTER 290. BENEFICIAL USE OF COAL ASH**

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**Authority**

This Chapter 290 issued under sections 102(4), 104(6) 105(a) and 508 of the Solid Waste Management Act (35 P. S. §§ 6018.102(4), 6018.104(6), 6018.105(a) and 6018.508), unless otherwise noted.

**Source**

The provisions of this Chapter 290 adopted December 10, 2010, effective December 11, 2010, 40 Pa.B. 7062, unless otherwise noted.

**Subchapter A. GENERAL**

**Sec.**

290.1. Definitions.

290.2. Scope.

**§ 290.1. Definitions.**

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

*Temporary coal ash storage pile*—A pile in which coal ash is stored for not more than 2 weeks.

*Water table*—

- (i) The top of the saturated zone.
- (ii) The term includes the regional groundwater table, perched water tables, seasonal high water table and mine pools.

**§ 290.2. Scope.**

(a) This chapter sets forth requirements for beneficial use of coal ash. Fly ash, bottom ash or boiler slag resulting from the combustion of coal that is not beneficially used in accordance with this chapter is a residual waste and is subject to regulation under other chapters in this article.

(b) If coal ash is mixed with residual waste, the beneficial use must be authorized by a permit issued under Chapter 287, Subchapter H (relating to beneficial use) and the requirements of this chapter must be met.

(c) If coal ash is produced by co-firing coal or waste coal with an alternative fuel:

- (1) Beneficial use of that material is regulated under this chapter as coal ash if the alternative fuel is less than 20% by weight of the total fuel mixture, as burned, and contributes less than 10% by weight of total ash quantity.
- (2) Beneficial use must be authorized by a permit issued under Chapter 287, Subchapter H and the requirements of this chapter must be met if the alternative fuel is equal to or greater than 20% by weight of the total fuel mixture, as burned, or contributes equal to or greater than 10% by weight of total ash quantity.
- (d) If coal ash is mixed with construction and demolition waste, the beneficial use must be authorized under a permit issued under Article VIII (relating to municipal waste) and the requirements of this chapter must be met.
- (e) Coal ash mixed with municipal waste, other than construction and demolition waste, may not be beneficially used by direct placement into the environment. Other types of beneficial use of coal ash mixed with municipal waste may be authorized by a permit issued under Article VIII and any applicable requirements of this chapter must be met.
- (f) Beneficial use activities that are subject to and meet the requirements of this chapter are not required to obtain an individual disposal permit under this article.

### Subchapter B. BENEFICIAL USE OF COAL ASH

Sec.

- 290.101. General requirements for beneficial use.  
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290.106. Other beneficial uses.  
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#### § 290.101. General requirements for beneficial use.

- (a) Coal ash may be beneficially used without a permit from the Department under the act if the person proposing the use complies with this chapter.
- (b) Chemical analysis must demonstrate that the coal ash does not exceed any of the maximum acceptable leachate levels in § 290.201(a) (relating to coal ash certification) when coal ash is proposed to be used under §§ 290.102—290.105 or § 290.106(a)(3) or (7). The minimum sampling and analysis procedures must satisfy the requirements in § 290.201(b) and (d).
- (c) The coal ash must satisfy the physical characteristics for the intended use in § 290.201(a).
- (d) A water quality monitoring plan in accordance with § 290.301 (relating to water quality monitoring) and, if applicable, Chapters 86—90 shall be devel-

oped and implemented if either more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total will be used as structural fill, at a coal mining activity site, or at an abandoned mine land site. Contiguous projects will be considered a single project for purposes of this section. The Department may require a water quality monitoring plan for projects involving lesser quantities of coal ash or for other beneficial uses of coal ash where site conditions warrant.

(e) Coal ash may not be placed within 8 feet of the water table, except where coal ash is used for mine subsidence control, mine fire control or mine sealing under § 290.106(a)(7) (relating to other beneficial uses).

(f) Coal ash may not be used in a way that causes water pollution.

#### Cross References

This section cited in 25 Pa. Code § 290.105 (relating to beneficial use at abandoned mine lands); and 25 Pa. Code § 290.301 (relating to water quality monitoring).

### § 290.102. Use as structural fill.

(a) At least 60 days before using coal ash as structural fill, the person proposing the use shall submit a written proposal to the Department. The written proposal must contain, at a minimum, the following information:

(1) A description of the nature, purpose and location of the project, including a topographic map showing the project and available soils maps of the area of the project.

(2) The estimated beginning and ending dates for the project.

(3) Construction plans for the structural fill, including a stability analysis when necessary, which shall be prepared by a licensed professional engineer in accordance with sound engineering practices and which shall be signed and sealed by the engineer.

(4) An estimate of the volume of coal ash to be used for the project.

(5) A total chemical and leaching analysis under § 290.201(a)(1) and (2) (relating to coal ash certification) for the coal ash to be used in the project. If the coal ash was generated at a facility for which the Department has previously approved a chemical and leaching analysis and the analysis is not older than 1 year, the person may submit a copy of the analysis that was approved.

(6) A signed statement by the owner of the land on which the structural fill is to be placed, acknowledging and consenting to the beneficial use of coal ash as structural fill.

(7) The statement by the landowner in paragraph (6) shall be a recordable document for any project, or set of contiguous projects involving placement of more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total per project. Prior to beneficial use of more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total per project under

this section, the statement by the landowner shall be recorded at the office of the recorder of deeds in the county in which the proposed coal ash beneficial use will take place.

(b) A person proposing to use coal ash as structural fill where more than 10,000 tons of coal ash per acre will be used on a project or more than 100,000 tons of coal ash in total will be used at a project shall place, at the time of filing a written proposal with the Department, a public notice in a local newspaper of general circulation in the locality of the proposed coal ash beneficial use activities at least once a week for 3 consecutive weeks. Contiguous projects will be considered a single project for purposes of this section. A copy of the public notice shall be provided to the local municipality and proof of public notice shall be submitted to the Department. At a minimum, the public notice must contain the following information:

(1) The name and business address of the person proposing to beneficially use coal ash.

(2) A brief description of the location and scope of the proposed beneficial use.

(3) The location of the Department office where a copy of the written proposal submitted to the Department is available for public inspection.

(c) The Department may require public notice for projects involving less than 10,000 tons of coal ash per acre or less than 100,000 tons of coal ash in total if the Department determines that the proposed beneficial use activities are of significant interest to the public or site conditions warrant.

(d) The Department will publish a summary of each written proposal in the *Pennsylvania Bulletin*.

(e) After receiving the information required under subsection (a), the Department will inform, in writing, the person that provided the information whether the proposed use of coal ash as structural fill is consistent with this section.

(f) For coal ash being beneficially used as a structural fill, the following additional requirements must be satisfied:

(1) The pH of the coal ash as placed must be 7.0 or above, unless otherwise approved by the Department. Lime may be added to raise pH. The pH of the coal ash may not be above 9.0 during placement and storage at the site of placement unless public access is restricted.

(2) The slope of a structural fill may not be greater than 2.5 horizontal to 1.0 vertical. The Department may approve a greater slope based on a demonstration of structural stability.

(3) Coal ash shall be spread uniformly and compacted in layers not exceeding 2 feet in thickness. The coal ash shall be spread and compacted within 24 hours of its delivery to the site unless stored in accordance with Subchapter E (relating to coal ash storage).

(4) Surface runoff from the fill area shall be minimized during filling and construction activity. Stormwater shall be managed in accordance with The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and the regulations promulgated thereunder.

(5) Surface water shall be diverted away from the disturbed area during filling and construction activity.

(6) Coal ash shall be covered with 12 inches of soil, unless infiltration is prevented by other cover material.

(7) Coal ash must achieve a minimum compaction of 90% of the maximum dry density as determined by the Modified Proctor Test, or 95% of the maximum dry density as determined by the Standard Proctor Test.

(8) The offsite dispersion of dust from coal ash and other materials shall be minimized.

(g) Coal ash used as structural fill may not be located:

(1) Within 100 feet of an intermittent or perennial stream or within 300 feet of exceptional value or high quality waters as defined in § 93.1 (relating to definitions), unless the structural fill is otherwise protected by a properly engineered diversion or structure that is permitted by the Department under the Dam Safety and Encroachments Act (32 P. S. §§ 693.1—693.27).

(2) Within 300 feet of a water supply unless the person obtains, in a form acceptable to the Department, a written waiver from the owner of the water supply, allowing for another distance.

(3) Within 25 feet of a bedrock outcrop, unless the outcrop is properly treated to minimize infiltration into fractured zones or otherwise approved by the Department.

(4) Within 100 feet of a sinkhole or area draining into a sinkhole.

(5) Within a 100-year floodplain of a water of this Commonwealth, unless a properly engineered dike, levee or other structure that can protect the structural fill from a 100-year flood is permitted by the Department in a manner that is consistent with the Flood Plain Management Act (32 P. S. §§ 679.101—679.601), the Storm Water Management Act (32 P. S. §§ 680.1—680.17) and the Dam Safety and Encroachments Act.

(6) In or within 100 feet of a wetland, other than an exceptional value wetland.

(7) In or within 300 feet of an exceptional value wetland.

(h) A person that proposed more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total at any project or contiguous projects shall submit to the Department prior to January 31 an annual report for the previous calendar year that includes contact information, the location of the site where the coal ash was utilized, the identity of each source of coal ash, and the volume in cubic yards and the weight in dry tons for each source.

(i) A person beneficially using coal ash under this section shall notify the Department within 72 hours of any evidence that the material does not meet the chemical standards or physical property requirements in § 290.201.

#### Cross References

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use); and 25 Pa. Code § 290.106 (relating to other beneficial uses).

### § 290.103. Use as a soil substitute or soil additive.

(a) At least 60 days before using coal ash as a soil substitute or soil additive, the person proposing the use shall submit a written proposal to the Department. The written proposal must contain, at a minimum, the following information:

(1) A description of the nature, purpose and location of the project, including a topographic map showing the project area and available soils maps of the project area. The description must include an explanation of how coal ash will be stored prior to use, how the soil will be prepared for the application of coal ash, how coal ash will be spread and, when necessary, how coal ash will be incorporated into the soil.

(2) The estimated beginning and ending dates for the project.

(3) An estimate of the volume of coal ash to be used for the project, the proposed application rate and a justification for the proposed application rate.

(4) A total chemical and leaching analysis and pH under § 290.201(a)(1) and (2) (relating to coal ash certification) for the coal ash to be used in the project. If the coal ash was generated at a facility for which the Department has previously approved a chemical and leaching analysis and the analysis is not older than 1 year, the person may submit a copy of the analysis that was approved.

(5) A chemical analysis for constituents listed in subsection (e) of the soil on which the coal ash is proposed to be placed.

(6) An analysis showing how the application of coal ash will be beneficial to the productivity or properties of the soil to which it is proposed to be applied. The analysis shall be prepared and signed by an expert in soil science.

(7) A signed statement by the owner of the land on which the coal ash is to be placed, acknowledging and consenting to the use of coal ash as a soil substitute or soil additive.

(b) After receiving the information required by subsection (a), the Department will inform, in writing, the person that provided the information whether the proposed use of coal ash as a soil substitute or soil additive is consistent with this section.

(c) Coal ash used as a soil substitute or soil additive may not be considered a beneficial use unless the following requirements are met:

(1) The pH of the coal ash and the pH of the soil must be in the range of 6.5 to 8.0 when mixed together in the manner required by the project, as shown by field and laboratory testing. Lime may be added to raise pH.

(2) Chemical analysis demonstrates the coal ash satisfies the minimum calcium carbonate equivalency requirement in § 290.201(a).

(3) Surface runoff from the project area shall be controlled during the project. Stormwater shall be managed in accordance with The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and the regulations promulgated thereunder.

(4) Coal ash shall be incorporated into the soil within 48 hours of application, unless otherwise approved by the Department. The coal ash shall be incorporated into the top 1-foot layer of surface soil. If 1 foot of surface soil is not present, coal ash may be combined with the surface soil that is present until the layer of combined surface soil and coal ash is 1 foot. The coal ash required for the beneficial use is limited to the amount necessary to enhance soil properties or plant growth.

(5) Coal ash shall be applied at a rate per acre that will protect public health, public safety and the environment.

(6) Coal ash may not be applied to soil being used for agriculture where the soil pH is less than 5.5.

(7) Coal ash may not be applied if resultant chemical or physical soil conditions would be detrimental to biota.

(8) The offsite dispersion of dust from coal ash and other materials shall be minimized.

(d) Coal ash may not be used as a soil substitute or soil additive:

(1) Within 100 feet of an intermittent or perennial stream, other than exceptional value or high quality waters as defined in § 93.1 (relating to definitions), or a wetland other than an exceptional value wetland.

(2) In or within 300 feet of an exceptional value wetland, or of exceptional value or high quality waters as defined in § 93.1.

(3) Within 300 feet of a water supply unless the person obtains, in a form acceptable to the Department, a written waiver from the owner of the water supply, allowing for another distance.

(4) Within 100 feet of a sinkhole or area draining into a sinkhole.

(5) Within 300 feet measured horizontally from an occupied dwelling, unless the current owner has provided a written waiver consenting to the activities closer than 300 feet. The waiver shall be knowingly made and separate from a lease or deed unless the lease or deed contains an explicit waiver from the current owner.

(e) Coal ash may not be used as a soil substitute or soil amendment in amounts that exceed the following maximum cumulative loading rates:

<i>Constituent</i>	<i>Cumulative Loading Rate</i>
arsenic	36 lbs/acre (41 kg/hectare)
boron	60 lbs/acre (67.2 kg/hectare)
cadmium	34 lbs/acre (38 kg/hectare)
chromium	2,672 lbs/acre (3,104 kg/hectare)
copper	1,320 lbs/acre (1,490 kg/hectare)
lead	264 lbs/acre (296 kg/hectare)
mercury	15 lbs/acre (17 kg/hectare)
molybdenum	16 lbs/acre (18 kg/hectare)
nickel	370 lbs/acre (420 kg/hectare)
selenium	88 lbs/acre (99 kg/hectare)
zinc	2,464 lbs/acre (2,780 kg/hectare)

(f) A person subject to the requirements of this section shall retain records of chemical and physical analyses, the quantity of coal ash utilized, the location of placement and the sources of coal ash for a minimum of 3 years after the beneficial use has ceased. The records shall be made available to the Department upon request.

(g) A person beneficially using coal ash under this section shall notify the Department within 72 hours of any evidence that the material does not meet the chemical standards or physical property requirements in § 290.201.

#### Cross References

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use); 25 Pa. Code § 290.104 (relating to beneficial use at coal mining activity sites); 25 Pa. Code § 290.105 (relating to beneficial use at abandoned mine lands); and 25 Pa. Code § 290.106 (relating to other beneficial uses).

### § 290.104. Beneficial use at coal mining activity sites.

(a) *Coal ash approval at coal mining activity sites.* Approval for the beneficial use of coal ash at coal mining activity sites as defined in § 86.1 (relating to definitions) will, at a minimum, be based on the following:

(1) Compliance with this section, The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and the regulations promulgated thereunder, the Surface Mining Conservation and Reclamation Act (52 P. S. §§ 1396.1—1396.19a), the Coal Refuse Disposal Control Act (52 P. S. §§ 30.51—30.66), the applicable provisions of Chapters 86—90 (relating to surface and underground coal mining: general, surface mining of coal, anthracite coal, underground mining of coal and coal preparation facilities, and coal refuse disposal), and other applicable environmental statutes and regulations promulgated thereunder.

(2) Certification under § 290.201 (relating to coal ash certification) by the Department for the intended beneficial uses.

(3) Approval of a request submitted pursuant to subsection (b).



(b) *Request.* A person shall submit to the Department a request to beneficially use the certified coal ash at a specific coal mining activity site as part of the reclamation plan under the mining permit. This request must contain the permit filing fee in subsection (c) and, at a minimum, the following:

(1) A narrative description of the project, including an explanation of how coal ash will be placed, where and how coal ash will be stored prior to placement, identification of the sources of coal ash and an estimate of the cubic yards of coal ash to be used. For the beneficial use of coal ash as a soil substitute or additive, the proposed application rate and justification for the application rate shall also be included.

(2) Information demonstrating that the coal ash has been certified for its intended use in accordance with § 290.201, including the identity of the generator and the Department-assigned certification identifier, as described in § 290.201(c).

(3) A signed statement by the owner of the land on which the coal ash is to be placed, acknowledging and consenting to the placement of coal ash. This statement by the landowner shall be a recordable document. Prior to beneficial use of coal ash under this section, the statement by the landowner shall be recorded at the office of the recorder of deeds in the county in which the proposed beneficial use of coal ash will take place.

(4) A monitoring plan that meets the requirements of Subchapter D (relating to water quality monitoring).

(c) *Permit filing fee.*

(1) A nonrefundable permit filing fee payable to the “Commonwealth of Pennsylvania” for the beneficial use of coal ash at a coal mining activity site is to be paid annually in the amount of:

(i) \$2,000 for each coal mining activity site approved to use coal ash until the year following final placement of coal ash at the site.

(ii) \$1,000 from the year following final placement of coal ash until final bond release has been issued for the coal mining activity site.

(2) Money received from the permit filing fee for the beneficial use of coal ash will be deposited in the Surface Mining Conservation and Reclamation Fund and will be used by the Department for the cost of reviewing, administering and enforcing the requirements of the authorization for beneficial use of coal ash under the coal mining activity permit.

(3) The Department will review the adequacy of the fees established in this section at least once every 3 years and provide a written report to the EQB. The report will identify any disparity between the amount of program income generated by the fees and the costs to administer these programs, and it shall contain recommendations to adjust fees to eliminate the disparity, including recommendations for regulatory amendments to adjust program fees.

(d) *Public notice.* A person proposing to use coal ash at coal mining activity sites shall provide public notice under § 86.31 or § 86.54 (relating to public notices of filing of permit applications; and public notice of permit revision).

(e) *Operating requirements.* The beneficial use of coal ash for reclamation purposes at a coal mining activity site shall be designed to achieve an overall improvement in water quality or shall be designed to prevent the degradation of water quality. Coal ash shall only be beneficially used for reclamation at the following locations:

(1) The pit or area from which coal is extracted under a surface coal mining permit.

(2) Abandoned mine lands located within the surface coal mining permit area.

(3) Coal refuse disposal sites and coal refuse reprocessing sites.

(4) Areas where other beneficial uses that are part of the approved reclamation plan at the coal mining activity site are being conducted.

(f) *Additional operating requirements for the placement of coal ash at permitted coal surface mining activity sites.* Placement of coal ash at coal surface mining activity sites must comply with the following additional requirements:

(1) The volume of coal ash placed at the site may not exceed the volume of coal, coal refuse, culm or silt removed from the site by the active mining operation on a cubic yard basis unless otherwise approved by the Department. The Department may authorize a greater volume of coal ash where the mine operator demonstrates that reclamation will be enhanced or water quality will be improved by the additional coal ash.

(2) Placement of coal ash shall be accomplished by mixing with spoil material or by spreading in horizontal layers no greater than 2 feet thick unless otherwise approved by the Department. The reclamation plan of the approved mining permit must address the placement of the coal ash.

(3) The coal ash shall be spread and compacted within 24 hours of its delivery to the site unless stored in accordance with Subchapter E (relating to coal ash storage).

(4) Where placement of coal ash is not being accomplished by mixing with spoil, the placed coal ash must achieve a minimum compaction of 90% of the maximum dry density as determined by the Modified Proctor Test, or 95% of the maximum dry density as determined by the Standard Proctor Test. The Proctor Test shall be conducted on a semiannual basis unless the Department requires more frequent testing.

(5) For a project involving multiple refuse reprocessing sites, the Department may allow a greater volume of coal ash to be placed at an individual site than the volume of coal refuse removed from that site if the following conditions are met:

(i) The multiple sites are a project involving the coordinated use of multiple coal refuse reprocessing sites.

(ii) A reclamation plan is approved for each of the sites and each plan identifies the total cubic yards of coal ash that may be placed at each site.

(iii) The total cubic yards of coal ash placed on the sites is less than the total cubic yards of refuse, culm or silt removed from the combined sites.

(iv) The project shall be designed to achieve an overall improvement of surface water or groundwater quality at each site, where acid mine drainage is evident. If acid mine drainage is not evident, the project shall be designed to prevent degradation of the surface or groundwater quality.

(v) Only coal ash from the project can be used.

(vi) The project shall be accomplished in a manner that blends into the general surface configuration and complements the surface drainage pattern of the surrounding landscape.

(6) The person shall maintain information identifying the sources and the volume in cubic yards and the weight in dry tons of coal ash used.

(7) The site shall be monitored in accordance with the requirements of Subchapter D and any additional hydrologic tests specified by the Department.

(8) The offsite dispersion of dust from coal ash and other materials shall be minimized.

(g) *Additional operating requirements for the beneficial use of coal ash as a soil substitute or soil additive.* The following apply to the beneficial use of coal ash as a soil substitute or soil additive:

(1) Coal ash shall be applied at a rate per acre that will protect public health, public safety and the environment.

(2) The coal ash that is applied will be part of the approved reclamation plan of the coal mining activity in order to increase the productivity or properties of the soil.

(3) The coal ash is not used in amounts that exceed the maximum cumulative loading rates in § 290.103(e) (relating to use as a soil substitute or soil additive).

(4) The offsite dispersion of dust from coal ash and other materials shall be minimized.

(h) *Additional operating requirements for the beneficial use of coal ash at coal refuse disposal sites.* The following apply to the beneficial use of coal ash at coal refuse disposal sites:

(1) Placement of coal ash as part of coal refuse disposal operations permitted under Chapters 86—90 must meet the following:

(i) The cubic yards of coal ash does not exceed the total cubic yards of coal refuse to be disposed based on uncompacted volumes of materials received at the site.

(ii) The coal ash has physical and chemical characteristics that meet the following requirements:

(A) Improve compaction and stability within the fill.

- (B) Reduce infiltration of water into coal refuse.
  - (C) Improve the quality of leachate generated by the coal refuse.
- (2) The offsite dispersion of dust from coal ash and other materials shall be minimized.
- (i) *Additional coal ash sampling.* A person using coal ash at a coal mining activity site shall, each quarter that coal ash is being used at the site, sample the coal ash after it has been placed at the site and such sample shall be analyzed in accordance with § 290.201. The results of the analysis shall be submitted quarterly to and in the format required by the Department. A reduced frequency may be approved by the Department where a coal mining activity site is receiving coal ash from only one source and is located at one of the following:
- (1) On the same tract of land where the coal ash was generated.
  - (2) On a tract of land contiguous to the tract where the coal ash was generated.
  - (3) On a tract of land connected to the tract where the coal ash was generated by a right-of-way controlled by the generator and to which the public does not have access.
  - (4) On a tract of land separated from the tract where the coal ash was generated by only a public or private right-of-way and access between the two tracts is by crossing rather than traveling along the right-of-way.
- (j) *Annual report.* Prior to January 31, the permittee of a coal mining activity site where coal ash was placed in the previous calendar year shall submit a report for the previous calendar year to the Department that includes permit number, mining company contact information, the identity of each source of coal ash and its Department-assigned certification identifier, and the volume in cubic yards and the weight in dry tons for each source of coal ash that was placed at the site.
- (k) *Notification to Department.* A person beneficially using coal ash under this section shall notify the Department within 72 hours of any evidence that the material does not meet the certification requirements in § 290.201.

#### Cross References

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use).

### § 290.105. Beneficial use at abandoned mine lands.

- (a) *Reclamation contract with the Department.* Coal ash may be beneficially used for the purposes of reclamation at abandoned mine lands, as defined in § 86.252 (relating to definitions), only if the reclamation work is performed pursuant to a contract with the Department. The beneficial use of coal ash at abandoned mine lands will, at a minimum, be based on the following:
- (1) Compliance with this section and the applicable environmental statutes and regulations promulgated thereunder.

(2) Certification under § 290.201 (relating to coal ash certification) by the Department for the intended use.

(3) Approval of a contract proposal submitted under subsection (b).

(b) *Contract proposal.* A proposal for the use of coal ash at abandoned mine lands must contain the following:

(1) A narrative description of the project, including an estimated beginning date and ending date for the project, an explanation of how coal ash will be placed, where and how coal ash will be stored prior to placement, identification of the sources of coal ash and an estimate of the cubic yards of coal ash to be used. For the beneficial use of coal ash as a soil substitute or additive, the proposed application rate and justification for the application rate shall also be included.

(2) Information demonstrating that the coal ash has been certified for its intended use in accordance with § 290.201, including the identity of the generator and the Department-assigned certification identifier, as described in § 290.201(c).

(3) Reclamation plans, including a stability analysis, when necessary, prepared by a licensed professional engineer in accordance with sound engineering practice and signed and sealed by the engineer.

(4) A signed statement by the owner of the land on which the coal ash is to be placed, acknowledging and consenting to the placement of coal ash. This statement by the landowner shall be a recordable document. Prior to beneficial use of coal ash under this section, the statement by the landowner shall be recorded at the office of the recorder of deeds in the county in which the proposed coal ash beneficial use will take place.

(5) A water quality monitoring plan consistent with the requirements in § 290.101(d) (relating to general requirements for beneficial use).

(c) *Public notice.* As a condition of contract award, a person proposing to use coal ash for reclamation involving use of more than 10,000 tons of coal ash per acre on a project or more than 100,000 tons of coal ash in total at any project shall place an advertisement in a local newspaper of general circulation in the locality of the proposed coal ash beneficial use activities at least once a week for 3 consecutive weeks. Contiguous projects will be considered a single project for purposes of this section. The Department may require public notice for projects involving lesser amounts of coal ash if the Department determines that the proposed beneficial use activities are of significant interest to the public or site conditions warrant. If public notice is required, a copy shall be provided to the local municipality and proof of notice shall be submitted to the Department. At a minimum, the notice must contain the following information:

(1) The name and business address of the person proposing to beneficially use coal ash.

(2) A brief description of the location and scope of the proposed beneficial use.

- (3) The location of the public office where a copy of the contract proposal submitted to the Department is available for public inspection.
- (d) *Department notification.* The Department will publish a summary of each contract in the *Pennsylvania Bulletin*.
- (e) *Operating requirements.* The use of coal ash as part of the reclamation activity at abandoned mine lands must satisfy the following additional requirements:
- (1) The slope of the reclaimed area may not be greater than 2.5 horizontal to 1.0 vertical. The Department may approve a greater slope based on a demonstration of stability.
  - (2) Coal ash shall be spread uniformly and compacted in layers not exceeding 2 feet in thickness unless otherwise approved by the Department. The coal ash shall be spread and compacted within 24 hours of its delivery to the site unless stored in accordance with Subchapter E (relating to coal ash storage).
  - (3) Surface runoff from the reclamation area shall be minimized during construction activity. Stormwater shall be managed in accordance with The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and the regulations promulgated thereunder.
  - (4) Surface water shall be diverted away from the disturbed area during construction activity.
  - (5) Coal ash shall be covered with 12 inches of soil, unless infiltration is prevented by other cover material.
  - (6) Coal ash must achieve a minimum compaction of 90% of the maximum dry density as determined by the Modified Proctor Test, or 95% of the maximum dry density as determined by the Standard Proctor Test. Ash from each source shall be tested individually.
  - (7) The offsite dispersion of dust from coal ash and other materials shall be minimized.
  - (8) Coal ash used for reclamation may not be placed:
    - (i) Within 100 feet of an existing intermittent or perennial stream, unless the person demonstrates to the Department's satisfaction that ash placement within 100 feet of the stream is necessary to remediate abandoned mine features located within 100 feet of the stream.
    - (ii) Within 300 feet of exceptional value or high quality waters as defined in § 93.1 (relating to definitions), unless the person demonstrates to the Department's satisfaction that ash placement within 300 feet of the waters is necessary to remediate abandoned mine features located within 300 feet of the waters.
    - (iii) Within 300 feet of a water supply unless the person obtains, in a form acceptable to the Department, a written waiver from the owner of the water supply, allowing for another distance.
    - (iv) Within 100 feet of a sinkhole or area draining into a sinkhole.

(v) Within a 100-year floodplain of a water of this Commonwealth, unless a properly engineered dike, levee or other structure that can protect the reclamation area from a 100-year flood is permitted by the Department in a manner that is consistent with the Flood Plain Management Act (32 P. S. §§ 679.101—679.601), the Storm Water Management Act (32 P. S. §§ 680.1—680.17) and the Dam Safety and Encroachments Act.

(vi) In or within 100 feet of a wetland, other than an exceptional value wetland.

(vii) In or within 300 feet of an exceptional value wetland.

(9) The following apply to the beneficial use of coal ash as a soil substitute or soil additive:

(i) Coal ash shall be applied at a rate per acre that will protect public health, public safety and the environment.

(ii) The coal ash that is applied will be part of the approved reclamation plan in order to increase the productivity or properties of the soil.

(iii) The coal ash is not used in amounts that exceed the maximum cumulative loading rates in § 290.103(e).

(f) *Annual report.* Prior to January 31, any person that placed coal ash at an abandoned mine land site in the previous calendar year shall submit a report for the previous calendar year to the Department that includes company contact information, the identity of the reclamation contract with the Department, the identity of each source of coal ash and its Department-assigned certification identifier, and the volume in cubic yards and the weight in dry tons for each source of coal ash that was placed at the site.

(g) *Notification to Department.* A person beneficially using coal ash under this section must notify the Department within 72 hours of any evidence that the material does not meet the certification requirements in § 290.201.

#### Cross References

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use).

### § 290.106. Other beneficial uses.

(a) The following uses of coal ash are deemed to be beneficial and do not require a permit from the Department under the act provided the uses are consistent with the requirements of this section:

(1) The use of coal ash in the manufacture of concrete or cement. The coal ash shall be utilized within 24 hours of its delivery to the site unless stored in accordance with Subchapter E (relating to coal ash storage).

(2) The extraction or recovery of one or more materials and compounds contained within the coal ash if the following conditions are met:

(i) Storage of coal ash before and after extraction or recovery shall be subject to Subchapter E.

- (ii) Disposal of the unrecovered fraction of coal ash shall be subject to the applicable requirements for residual waste.
- (3) The use of fly ash as a stabilized product. Other uses of fly ash in which physical or chemical characteristics are altered prior to use or during placement will be considered a beneficial use under this section if the following conditions are met:
  - (i) The person proposing the use has first given advance written notice to the Department.
  - (ii) The fly ash is not mixed with solid waste, unless otherwise approved, in writing, by the Department prior to the use.
  - (iii) The use of the fly ash results in a demonstrated reduction of the potential of the material to leach constituents into the environment.
  - (iv) If fly ash is used as structural fill, the requirements of § 290.102 (relating to use as structural fill) must be met.
  - (v) If fly ash is used as a soil amendment, the requirements of § 290.103 (relating to use as a soil substitute or soil additive) must be met.
- (4) The use of bottom ash or boiler slag as an antiskid material or road surface preparation material, if the use is consistent with Department of Transportation specifications or other applicable specifications. The use of fly ash as an antiskid material or road surface preparation material is not deemed to be a beneficial use.
- (5) The use of coal ash as raw material for a product with commercial value, including the use of bottom ash in construction aggregate. Storage of coal ash prior to processing is subject to Subchapter E.
- (6) The use of coal ash as pipe bedding, if the person proposing the use has first given advance written notice to the Department, and has provided to the Department an evaluation of the pH of the coal ash and a chemical analysis of the coal ash.
- (7) The use of coal ash for mine subsidence control, mine fire control and mine sealing, if the following requirements are met:
  - (i) The person proposing the use gives advance written notice to the Department.
  - (ii) If a project is funded by or through the Department, use of the coal ash shall be consistent with applicable Departmental requirements and contracts.
  - (iii) The coal ash shall be utilized within 24 hours of its delivery to the site unless stored in accordance with Subchapter E.
  - (iv) The coal ash will undergo cementitious reactions after placement.
- (8) The use of coal ash as a fuel, provided it has a minimum heating value of 5,000 Btu/lb. Storage of coal ash prior to use as a fuel is subject to Subchapter E.
- (b) A person beneficially using coal ash under this section shall notify the Department within 72 hours of any evidence that the material does not meet



appropriate chemical standards or physical property requirements in § 290.201 (relating to coal ash certification).

(c) A person subject to the requirements of this section shall retain records of chemical and physical analyses, the quantity of coal ash utilized, the location of placement and the sources of coal ash for a minimum of 3 years after the beneficial use has ceased. The records shall be made available to the Department upon request.

#### Cross References

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use).

### § 290.107. Requests for information.

(a) The Department may request documents and other information from a person to demonstrate that the person is conducting or proposing to use coal ash in a manner that is compliant with this subchapter and the person shall make the documents and information available to the Department upon request.

(b) Failure to have documentation of compliance with this subchapter may lead to a presumption that the person is disposing residual waste without a permit.

## Subchapter C. COAL ASH CERTIFICATION

Sec.

290.201. Coal ash certification.

290.202. Revocation of certification.

290.203. Exceedance of certification requirements.

### § 290.201. Coal ash certification.

(a) Certification standards are as follows:

(1) Maximum acceptable leachate levels for certification:

(i) For metals and other cations other than selenium, 25 times the waste classification standard for a contaminant.

(ii) For selenium, 10 times the waste classification standard.

(iii) For nonmetals and anions other than sulfate and fluoride, the waste classification standard for a contaminant.

(iv) For sulfate, 10 times the waste classification standard.

(2) The pH of coal ash must be 7.0 or above.

(3) For coal ash used as an alkaline additive, the calcium carbonate equivalency, as determined by the Neutralization Potential Test in the Department's *Overburden Sampling and Testing Manual* (Noll, et al., 1988) or other method approved by the Department, must be a minimum of 100 parts per thousand (10% by weight).

(4) For coal ash used as a low permeability material, the hydraulic conductivity of the coal ash must be  $1.0 \times 10^{-6}$  cm/sec or less based on hydraulic conductivity testing using ASTM D 5084 (Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter) or other method approved by the Department. Hydraulic conductivity testing should use compaction and other preparation techniques that will duplicate the expected conditions at the mine site.

(5) The Department may approve the addition of lime or cement to coal ash to achieve the requirements of this subsection. Use of these conditioners must be designated as part of the request in subsection (b).

(b) A request by the generator for coal ash certification must contain the following information on a form provided by the Department:

(1) The name and location of the generator of the coal ash.

(2) A designation of the beneficial use or uses for which certification is requested.

(3) A description of the generation process specific to the generator, including the combustion process, and pollution control processes that impact the chemical characteristics or physical properties of the coal ash, the fuel sources utilized, and the expected percentages of coal ash derived from different processes that will be incorporated into the final coal ash stream to be delivered to the beneficial use site.

(4) A description of the physical properties and chemical characteristics of any material mixed with the coal ash, the extent of mixing, and the mixing methods used.

(5) A detailed chemical analysis on at least four representative samples spaced throughout a 2 to 6-month sampling period within the last year that fully characterizes the composition of the coal ash. The chemical analysis must include:

(i) Total concentrations for aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, sulfur, thallium, vanadium and zinc using methods found in EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA Publication No. SW-846) or comparable methods approved by the Department.

(ii) Leachable concentrations for aluminum, ammonia, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chloride, chromium, cobalt, copper, fluoride, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, nitrate, nitrite, potassium, selenium, silver, sodium, sulfate, thallium, vanadium and zinc using methods found in EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA Publication No. SW-846) or comparable methods approved by the Department. Leachate concentrations must be determined using EPA Method 1312, the synthetic

precipitation leaching procedure, unless another leaching procedure is required by the Department.

(iii) pH using the soil and waste pH method found in EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA Publication No. SW-846) or comparable methods approved by the Department.

(iv) Information to show that the laboratory making a chemical analysis for the application is in compliance with 27 Pa.C.S. Chapter 41 (relating to environmental laboratory accreditation).

(6) A laboratory analysis for optimum moisture content and dry density (Standard or Modified Proctor Test).

(7) An analysis of hydraulic conductivity reported in cm/sec.

(8) A determination of neutralization potential as determined by the Neutralization Potential Test in the Department's *Overburden Sampling and Testing Manual* (Noll, et al., 1988) or other method approved by the Department.

(9) A detailed description of the sampling methodology used, date the samples were taken, and name and contact information of the person performing the sampling.

(10) Other physical or chemical testing results, if required for the particular beneficial uses being proposed.

(c) The Department will review the certification request and notify the generator in writing of the Department-assigned certification identifier or the reason that the source was not certified for beneficial use.

(d) If the coal ash is certified, the generator shall submit regular monitoring information to demonstrate that the coal ash continues to meet the requirements for certification. This information shall be submitted on dates specified by and on forms provided by the Department. At a minimum, monitoring requirements shall consist of the following:

(1) At least one representative sample analysis of the coal ash submitted every 3 months.

(2) Collection of a representative sample for analysis whenever there is a change in operation of the combustion unit generating the coal ash or a change in the fuel source that could result in a significant increase in a coal ash chemical parameter or a change in physical properties that could adversely impact slope stability, compaction characteristics or site hydrology.

(3) Prior to January 31, a yearly report that includes the weight in dry tons of coal ash produced for beneficial use in the previous calendar year, an estimate of the volume in cubic yards and the locations, such as mine sites, where the coal ash was delivered.

(e) The coal ash generator shall notify the Department of any changes to the information filed in the certification application or of any evidence that the coal ash may not meet certification requirements.

**Cross References**

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use); 25 Pa. Code § 290.102 (relating to use as structural fill); 25 Pa. Code § 290.103 (relating to use as a soil substitute or soil additive); 25 Pa. Code § 290.104 (relating to beneficial use at coal mining activity sites); 25 Pa. Code § 290.105 (relating to beneficial use at abandoned mine lands); 25 Pa. Code § 290.106 (relating to other beneficial uses); 25 Pa. Code § 290.202 (relating to revocation of certification); and 25 Pa. Code § 290.203 (relating to exceedance of certification requirements).

**§ 290.202. Revocation of certification.**

(a) The Department will revoke certification for a source of coal ash if any of the following occur:

- (1) The generator fails to comply with monitoring requirements as described in § 290.201(d) (relating to coal ash certification).
- (2) The coal ash exceeds certification standards and the generator fails to make an acceptable demonstration as described in § 290.203 (relating to exceedance of certification requirements).
- (3) There are physical or chemical characteristics that make the coal ash unsuitable for beneficial use.

(b) If certification is revoked, the coal ash cannot be used at a coal mining activity site or an abandoned mine land site in this Commonwealth unless the generator requests recertification under subsection (c) and the coal ash is recertified by the Department.

(c) The generator of coal ash that had its certification revoked may request recertification. For certification to be reinstated, the generator shall demonstrate to the Department's satisfaction that:

- (1) A detailed chemical analysis on three recent monthly representative samples establish that the coal ash meets the certification requirements.
- (2) There are no other physical or chemical characteristics that make the coal ash unsuitable for beneficial use.

**§ 290.203. Exceedance of certification requirements.**

(a) If the coal ash sample analysis results exceed any certification standard, the generator shall submit to the Department within 30 days of receiving the results of exceedance the following:

- (1) In the case of laboratory error, documentation and an explanation from the laboratory of the type of error. This information shall be accompanied by a corrected sample analysis or additional sample results demonstrating that the coal ash meets the requirements in § 290.201(a) (relating to coal ash certification).
- (2) A demonstration that the sample analysis is anomalous by providing the following:
  - (i) A comparison of the anomalous sample with prior coal ash samples.
  - (ii) Additional sample results demonstrating that the coal ash meets the criteria.

- (iii) A plan for temporary increase in coal ash monitoring.
  - (iv) An explanation of the cause of the exceedance and how further exceedances will be avoided.
- (b) If the generator demonstrates to the satisfaction of the Department that the exceedance is an anomaly, the coal ash may continue to be beneficially used. Failure to provide this demonstration will result in revocation of beneficial use certification for the source.

#### Cross References

This section cited in 25 Pa. Code § 290.202 (relating to revocation of certification).

### Subchapter D. WATER QUALITY MONITORING

Sec.

- 290.301. Water quality monitoring.
- 290.302. Number, location and depth of monitoring points.
- 290.303. Standards for wells and casing of wells.
- 290.304. Assessment plan.
- 290.305. Abatement plan.
- 290.306. Recordkeeping.
- 290.307. Interim water quality monitoring requirements.

#### Cross References

This section cited in 25 Pa. Code § 290.104 (relating to beneficial use at coal mining activity sites); 25 Pa. Code § 290.401 (relating to design and operation); 25 Pa. Code § 290.405 (relating to storage piles—general requirements); and 25 Pa. Code § 290.411 (relating to storage impoundments—operating requirements).

#### § 290.301. Water quality monitoring.

- (a) A water quality monitoring plan shall be submitted to the Department for approval prior to placement or storage of coal ash when required under this chapter.
- (b) At a minimum, the water quality monitoring plan must include the following information:
  - (1) The location and design of downgradient and upgradient monitoring points.
  - (2) A minimum of 12 background samples from each monitoring point taken at monthly intervals prior to placement of coal ash, unless a greater number or frequency is required by the Department.
  - (3) The samples to be taken quarterly after approval from each monitoring point, unless a greater number or frequency is required by the Department.
- (c) The person taking the samples and the laboratory performing the analysis required under this section shall employ the quality assurance/quality control procedures described in the EPA's "Handbook for Analytical Quality Control in

Water and Wastewater Laboratories” (EPA 600/4-79-019) or “Test Methods for Evaluating Solid Waste” (SW-846).

(d) The analytical methodologies used to meet the requirements of this section must be those in the most recent edition of the EPA’s “Test Methods for Evaluating Solid Waste” (SW-846), “Methods for Chemical Analysis of Water and Wastes” (EPA 600/4-79-020), “Standard Methods for Examination of Water and Wastewater,” prepared and published jointly by the American Public Health Association, American Waterworks Association, and Water Pollution Control Federation or a comparable method approved by the EPA or the Department. The laboratory making any chemical analysis for water quality monitoring must be in compliance with 27 Pa.C.S. Chapter 41 (relating to environmental laboratory accreditation).

(e) Samples shall be analyzed for pH (determined in the field and in the laboratory), temperature (determined in the field), specific conductance (at 25° C; determined in the field), alkalinity, acidity, sulfate, chloride, fluoride, nitrate, nitrite, ammonia, and total suspended solids without filtration.

(f) Samples shall be analyzed for total and dissolved aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. In addition, the static water elevation for monitoring wells and the flow for springs, seeps and mine discharges must be measured.

(g) Additional parameters may be required by the Department based on conditions at the site and the specific characteristics of the coal ash being beneficially used.

(h) Water quality monitoring shall continue quarterly for a minimum of 5 years after final placement or storage of coal ash at the site, and annually thereafter from the end of year 5 through 10 years after final placement or storage of coal ash at the site. The Department may require more frequent or longer water quality monitoring if the results of water quality monitoring indicate that contamination may be occurring.

(i) Water quality monitoring data shall be submitted quarterly to and in the format required by the Department. Water quality monitoring data shall be submitted to the Department annually from the end of year 5 through 10 years after final placement or storage of coal ash at the site.

(j) The person required to develop and implement a water quality monitoring plan in accordance with § 290.101(d) (relating to general requirements for beneficial use) shall demonstrate attainment with applicable groundwater or surface water remediation standards as required in the event of groundwater or surface water degradation attributable to the placement of the coal ash. The applicable groundwater remediation standards are identified in §§ 290.304 and 290.305 (relating to assessment plan; and abatement plan).

**Cross References**

This section cited in 25 Pa. Code § 290.101 (relating to general requirements for beneficial use); and 25 Pa. Code § 290.307 (relating to interim water quality monitoring monitoring requirements).

**§ 290.302. Number, location and depth of monitoring points.**

(a) The water quality monitoring system shall accurately characterize groundwater and surface water flow, groundwater and surface water chemistry and flow systems on the site and adjacent area. The system must consist of the following:

(1) At least one monitoring point at a position hydraulically upgradient from the coal ash placement area in the direction of increasing static head that is capable of providing representative data of groundwater not affected by placement of coal ash, except when the coal ash placement area occupies the most upgradient position in the flow system. In that case, sufficient downgradient monitoring points shall be placed to determine the extent of adverse effects on groundwater from the coal ash placement.

(2) At least three groundwater monitoring points hydraulically downgradient in the direction of decreasing static head from the area in which coal ash has been or will be placed. The Department at its discretion may accept two downgradient monitoring points on small sites that can be well represented by two points. The Department may allow one or more springs, seeps and mine discharges to substitute for wells if these points are hydraulically downgradient from the area in which coal ash has been or will be placed and if these points will be as effective or more effective at monitoring the coal ash placement area than wells. Downgradient monitoring points must be hydrologically connected to the area of coal ash placement, and must be located and constructed so as to detect any chemical influence of the coal ash placement area. The downgradient points must be proximate enough to detect contaminants within the life of the placement operation. All monitoring points must be developed and protected in a manner approved by the Department.

(3) Surface water monitoring points where surface water monitoring is likely to show any chemical influence that the coal ash placement area may have on the hydrologic regime.

(b) The upgradient and downgradient monitoring points shall be:

(1) Sufficient in number, location and depth to be representative of water quality.

(2) Located so as not to interfere with routine operations at the site.

(3) Located within 200 feet of the coal ash placement area or mining activity area, except as necessary to comply with subsections (c) and (d). The Department may approve location at a greater distance based on the hydrology of the coal ash placement and adjacent areas.

(c) In addition to the requirements of subsection (b), upgradient monitoring points shall be located so that they will not be affected by effects on groundwater or surface water from the coal ash placement area.

- (d) In addition to the requirements of subsection (b), downgradient monitoring points shall be located so that they will provide early detection of effects on groundwater or surface water from the coal ash placement area.
- (e) Wells drilled under this section shall be drilled by drillers licensed under the Water Well Drillers License Act (32 P. S. §§ 645.1—645.13).
- (f) The well materials shall be decontaminated prior to installation.

#### Cross References

This section cited in 25 Pa. Code § 290.304 (relating to assessment plan); and 25 Pa. Code § 290.307 (relating to interim water quality monitoring requirements).

### § 290.303. Standards for wells and casing of wells.

- (a) A monitoring well shall be cased as follows:
  - (1) The casing must maintain the integrity of the monitoring well borehole and be constructed of material that will not react with the groundwater being monitored.
  - (2) The minimum casing diameter must be 4 inches unless otherwise approved by the Department in writing.
  - (3) The well must be constructed with a screen that meets the following requirements:
    - (i) The screen must be factory-made.
    - (ii) The screen may not react with the groundwater being monitored.
    - (iii) The screen must maximize open area to minimize entrance velocities and allow rapid sample recovery.
  - (4) The well must be filter-packed with chemically inert clean quartz sand, silica or glass beads, unless otherwise approved by the Department. The material must be well-rounded and dimensionally stable.
  - (5) The casing must extend at least 1 foot aboveground, unless the Department has approved flush mount wells.
  - (6) The annular space above the sampling depth must be sealed to prevent contamination of samples and the groundwater.
  - (7) The casing must be designed and constructed to prevent cross contamination between surface water and groundwater.
  - (8) Alternative casing designs for wells in stable formations may be approved by the Department.
- (b) Monitoring well casings must be enclosed in a protective casing that must:
  - (1) Be of sufficient strength to protect the well from damage by heavy equipment and vandalism.
  - (2) Be installed for at least the upper 10 feet of the monitoring well, as measured from the well cap, with a maximum stick up of 3 feet, unless otherwise approved by the Department in writing.



- (3) Be grouted and placed with a concrete collar at least 3 feet deep to hold it firmly in position.
- (4) Be numbered for identification with a label capable of withstanding field conditions.
- (5) Protrude above the monitoring well casing.
- (6) Have a locked cap.
- (7) Be made of steel or other material of equivalent strength.

#### Cross References

This section cited in 25 Pa. Code § 290.304 (relating to assessment plan); and 25 Pa. Code § 290.307 (relating to interim water quality monitoring requirements).

### § 290.304. Assessment plan.

(a) A person shall prepare and submit to the Department an assessment plan within 60 days after one of the following occurs:

(1) Data obtained from water quality monitoring by the Department or the person indicates statistically significant degradation. Statistical evaluation of water quality monitoring data shall be made using one or more of the methods in 40 CFR 258.53(g) and (h) (relating to ground-water sampling and analysis requirements).

(2) Laboratory analysis of one or more public or private water supplies indicates groundwater or surface water contamination is occurring that could reasonably be attributed to the coal ash placement.

(b) An assessment under this section must consist of chemical data and a supporting narrative, if one of the following applies:

(1) Within 10 working days after receipt of sample results indicating groundwater or surface water degradation, the person resamples the affected monitoring points and analysis from resampling shows, to the Department's satisfaction, that groundwater or surface water degradation has not occurred.

(2) Within 20 working days after receipt of sample results indicating groundwater or surface water degradation, the person demonstrates that the degradation was caused by seasonal variations or activities unrelated to coal ash placement.

(c) The assessment plan must specify the manner in which the person will determine the existence, quality, quantity, areal extent and depth of groundwater or surface water degradation and the rate and direction of migration of contaminants. An assessment plan shall be prepared and sealed by a professional geologist licensed to practice in this Commonwealth. The plan must contain the following information:

(1) For wells, lysimeters, borings, pits, piezometers, springs, seeps, mine discharges and other assessment structures or devices, the number, location, size, casing type and depth, as appropriate. If the assessment points are wells,

they shall be constructed in accordance with §§ 290.302 and 290.303 (relating to number, location and depth of monitoring points; and standards for wells and casing of wells).

(2) The sampling and analytical methods for the parameters to be evaluated.

(3) The evaluation procedures, including the use of previously gathered groundwater or surface water quality and quantity information, to determine the concentration, rate and extent of groundwater or surface water degradation from the facility.

(4) A biological assessment of surface water, if required by the Department.

(5) An implementation schedule.

(6) Identification of the abatement standard that will be met.

(d) The assessment plan shall be implemented upon approval by the Department in accordance with the approved implementation schedule, and shall be completed in a reasonable time not to exceed 6 months, unless otherwise approved by the Department. If the Department determines that the proposed plan is inadequate, it may modify the plan and approve the plan as modified. If the groundwater or surface water assessment indicates that contamination is leaving the coal ash placement site, the person shall notify, in writing, each owner of a private or public water supply that is located within 1/2-mile downgradient of the coal ash placement area that an assessment has been initiated.

(e) Within 45 days after the completion of the assessment plan, the person shall submit a report containing the new data collected, analysis of the data and recommendations on the necessity for abatement.

(f) If the Department determines after review of the assessment report that implementation of an abatement plan is not required under § 290.305 (relating to abatement plan), the person shall submit a revised water quality monitoring plan to the Department for approval that contains any necessary changes to the plan and an application for permit modification, if applicable. The person shall implement the modifications within 30 days of the Department's approval.

(g) This section does not prevent the Department from requiring or the person from conducting abatement or water supply replacement concurrently with or prior to implementation of the assessment.

#### **Cross References**

This section cited in 25 Pa. Code § 290.301 (relating to water quality monitoring); and 25 Pa. Code § 290.305 (relating to abatement plan).

#### **§ 290.305. Abatement plan.**

(a) The person that is required to conduct water quality monitoring as part of coal ash beneficial use or storage shall prepare and submit to the Department an abatement plan whenever one of the following occurs:

(1) The assessment plan prepared and implemented under § 290.304 (relating to assessment plan) shows the presence of groundwater or surface water degradation for one or more contaminants at one or more monitoring points and the analysis indicates that an abatement standard will not be met at the compliance points.

(2) Monitoring by the Department or person shows the presence of an abatement standard exceedance from one or more compliance points even if an assessment plan has not been completed. The person is not required to implement an abatement plan under this paragraph if the following apply:

(i) Within 10 days after receipt of sample results showing an exceedance of an abatement standard at a point of compliance, the person resamples the affected monitoring points.

(ii) Analysis from resampling shows to the Department's satisfaction that an exceedance of an abatement standard has not occurred.

(3) A biological assessment of surface water implemented under § 290.304(c)(4) shows a detrimental effect on biota is occurring.

(b) An abatement plan shall be prepared and sealed by a professional geologist licensed to practice in this Commonwealth. The plan must contain the following information:

(1) The specific methods or techniques to be used to abate groundwater or surface water degradation at the facility.

(2) The specific methods or techniques to be used to prevent further groundwater or surface water degradation from the facility.

(3) A schedule for implementation.

(c) If abatement is required in accordance with subsection (a), the person shall demonstrate compliance with one or more of the following standards at the identified compliance points:

(1) For constituents for which Statewide health standards exist, the Statewide health standard for that constituent at and beyond 500 feet of the perimeter of the coal ash placement area or at and beyond the property boundary, whichever is closer.

(2) The background standard for constituents at and beyond 500 feet of the perimeter of the coal ash placement area or at and beyond the property boundary, whichever is closer. Load-based standards at groundwater discharge points are acceptable if a permit was issued under Chapter 87, Subchapter F or Chapter 88, Subchapter G (relating to surface coal mines: minimum requirements for remining areas with polluttional discharges; and anthracite surface mining activities and anthracite bank removal and reclamation activities: minimum requirements for remining areas with polluttional discharges).

(3) For constituents for which no primary MCLs under the Federal and State Safe Drinking Water Acts (42 U.S.C.A. §§ 300f—300j-18; and 35 P. S. §§ 721.1—721.17) exist, the risk-based standard at and beyond 500 feet of the

perimeter of the coal ash placement area or at and beyond the property boundary, whichever is closer, if the following conditions are met:

- (i) The risk assessment used to establish the standard assumes that human receptors exist at the property boundary.
- (ii) The level is derived in a manner consistent with the health risk assessment portions of the Department's *Land Recycling Program Technical Guidance Manual* (253-0300-100) or other standard procedures commonly used in the environmental field for assessing the health risks of environmental pollutants.
- (iii) The level is based on scientifically valid studies conducted in accordance with good laboratory practice standards (40 CFR Part 792 (relating to good laboratory practice standards)) promulgated under the Toxic Substances Control Act (15 U.S.C.A. §§ 2601—2692) or other scientifically valid studies approved by the Department.
- (iv) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level of  $1 \times 10^{-5}$  at the property boundary.
- (d) For measuring compliance with secondary contaminants under subsection (c)(1) or (3), the Department may approve a compliance point beyond 500 feet on land owned by the owner of the coal ash placement area.
- (e) The abatement plan shall be completed and submitted to the Department for approval within 90 days of the time the obligation arises under this section unless the date is otherwise modified, in writing, by the Department.
- (f) If the Department determines that the proposed plan is inadequate, the Department may modify the plan and approve the plan as modified or require the submission of an approvable modification.
- (g) The abatement plan shall be implemented within 60 days of approval by the Department in accordance with the approved implementation schedule.
- (h) If, after plan approval or implementation, the Department finds that the plan is incapable of achieving the groundwater or surface water protection contemplated in the approval, the Department may issue one or more of the following:
  - (1) An order requiring the person to submit proposed modifications to the abatement plan.
  - (2) An order requiring the person to implement the abatement plan as modified by the Department.
  - (3) Another order the Department deems necessary to aid in the enforcement of the acts.

#### Cross References

This section cited in 25 Pa. Code § 290.301 (relating to water quality monitoring); and 25 Pa. Code § 290.304 (relating to assessment plan).

**§ 290.306. Recordkeeping.**

A person subject to the requirements of this subchapter shall retain records of analyses and evaluations of monitoring data and groundwater elevations required under this subchapter for a minimum of 3 years after water quality monitoring ceases and make the records available to the Department upon request.

**§ 290.307. Interim water quality monitoring requirements.**

This section applies to sites where coal ash has been stored or placed for beneficial use prior to December 11, 2010, and continues to be stored or placed for beneficial use following December 11, 2010.

(1) For sites not previously subject to water quality monitoring requirements:

(i) A water quality monitoring plan meeting the requirements of § 290.301(b)(1) and (3) (relating to water quality monitoring) shall be submitted to the Department by December 12, 2011.

(ii) The water quality monitoring plan shall be implemented within 1 year of the Department's approval of the plan.

(2) For sites previously subject to water quality monitoring requirements:

(i) New monitoring points and replacement wells constructed after December 11, 2010, must comply with the requirements in §§ 290.302(b)—(f) and 290.303 (relating to number, location and depth of monitoring points; and standards for wells and casing of wells).

(ii) All water quality monitoring after March 11, 2011, must include the parameters in § 290.301(e) and (f) and any parameters added by the Department based onsite conditions in accordance with § 290.301(g).

**Subchapter E. COAL ASH STORAGE**

Sec.

- 290.401. Design and operation.
- 290.402. Duration of storage.
- 290.403. Surface and groundwater protection.
- 290.404. Areas where coal ash storage is prohibited.
- 290.405. Storage piles—general requirements.
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- 290.409. Storage impoundments—general requirements.
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- 290.411. Storage impoundments—operating requirements.
- 290.412. Storage impoundments—failure.
- 290.413. Storage impoundments—inspections.
- 290.414. Storage areas—closure.
- 290.415. Interim requirements for sites where coal ash has been stored.

**Cross References**

This section cited in 25 Pa. Code § 290.102 (relating to use as structural fill); 25 Pa. Code § 290.104 (relating to beneficial use at coal mining activity sites); 25 Pa. Code § 290.105 (relating to beneficial use at abandoned mine lands); and 25 Pa. Code § 290.106 (relating to other beneficial uses).

**§ 290.401. Design and operation.**

(a) A person storing coal ash shall employ best engineering design and construction practices for all phases of construction and operation.

(b) A person may not store coal ash in a manner that exceeds the design capacity of the storage facility.

(c) The Department may require a person to install a water quality monitoring system in accordance with Subchapter D (relating to water quality monitoring) if storage of the coal ash has the potential to cause groundwater degradation.

(d) A person storing coal ash shall routinely inspect the facility, its equipment and the surrounding area for evidence of failure and shall immediately take necessary corrective actions. The person shall maintain records of inspections and corrective actions that were taken for a minimum of 3 years, and make the records available to the Department upon request.

**§ 290.402. Duration of storage.**

(a) Coal ash may not be stored as follows:

(1) For more than 1 year unless a minimum of 75% of the volume of the coal ash being stored is used or processed for beneficial use in the previous calendar year commencing on January 1st.

(2) For more than 90 days unless it is stored on an impermeable floor or pad and either in an enclosed facility or in an area where runoff is collected and treated. The Department may waive or modify, in writing, this requirement if there is no runoff from the storage.

(b) The Department will presume that a person storing coal ash contrary to subsection (a) is operating a waste disposal facility and is subject to the applicable requirements of the act and regulations thereunder for waste disposal.

(c) A person that stores coal ash shall maintain for a minimum of 3 years accurate operational records that are sufficiently detailed to demonstrate to the Department that coal ash is being stored under subsection (a). The records shall be made available to the Department upon request. The presumption in subsection (b) may be overcome by the operational records required by this subsection.

**§ 290.403. Surface and groundwater protection.**

(a) Surface water runoff from storage areas shall be minimized. Stormwater shall be managed in accordance with The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and the regulations promulgated thereunder.

(b) Surface water run-on to storage areas shall be minimized.

(c) Coal ash may not be stored in a manner that causes groundwater or surface water degradation.

**§ 290.404. Areas where coal ash storage is prohibited.**

(a) Coal ash storage areas, other than areas where the coal ash is totally enclosed and stored on an impermeable floor, temporary coal ash storage piles or storage impoundments, may not be operated as follows, unless otherwise authorized by the Department in writing:

- (1) Within 100 feet of an intermittent or perennial stream, other than exceptional value or high quality waters as defined in § 93.1 (relating to definitions).
- (2) Within 300 feet of exceptional value or high quality waters as defined in § 93.1.
- (3) Within 300 feet of a groundwater water source.
- (4) Within 1,000 feet upgradient of a surface drinking water source.
- (5) Within 25 feet of a bedrock outcrop, unless the outcrop is properly treated to minimize infiltration into fractured zones.
- (6) Within 100 feet of a sinkhole or area draining into a sinkhole.
- (7) Within 100 feet of a wetland, other than an exceptional value wetland.
- (8) In or within 300 feet of an exceptional value wetland.

(b) Coal ash storage impoundments may not be operated as follows:

- (1) In the 100-year floodplain of waters of this Commonwealth.
- (2) In or within 100 feet of a wetland other than an exceptional value wetland.
- (3) In or within 300 feet of an exceptional value wetland.
- (4) In an area where the operation would result in the elimination, pollution or destruction of a portion of an intermittent stream or perennial stream.
- (5) Within 100 feet of an intermittent stream or perennial stream, other than exceptional value or high quality waters as defined in § 93.1.
- (6) Within 300 feet of exceptional value or high quality waters as defined in § 93.1.
- (7) In areas underlain by limestone or carbonate formations, where the formations are greater than 5 feet thick and present at the topmost geologic unit. These areas include areas mapped by the “Pennsylvania Geological Survey” as underlain by these formations, unless competent geologic studies certified by a professional geologist licensed to practice in this Commonwealth demonstrate the absence of limestone and carbonate formations under the site.
- (8) Within 900 feet measured horizontally from an occupied dwelling, unless the owner of the dwelling has provided a written waiver consenting to the coal ash storage impoundment being closer than 900 feet. A waiver shall be knowingly made and separate from a lease or deed unless the lease or deed

contains an explicit waiver from the owner. A closed coal ash storage impoundment that submits an application to reopen and expand shall also be subject to this paragraph.

(9) Within 100 feet of a property line, unless the current owner has provided a written consent to the coal ash storage impoundment being closer than 100 feet. The waiver shall be knowingly made and separate from a lease or deed unless the lease or deed contains an explicit waiver from the current owner.

(10) Within 1/4 mile upgradient, and within 300 feet downgradient, of a private or public water source, except that the Department may waive or modify the isolation distances to a private water source if the person demonstrates and the Department finds, in writing, that the following conditions have been met:

(i) The owners of the private water sources in the isolation area have consented, in writing, to the location of the proposed coal ash storage impoundment.

(ii) The person storing coal ash and each water source owner have agreed, in writing, that the person will construct and maintain at the person's expense a permanent alternative water supply of like quantity and quality at no additional cost to the water source owner if the existing source is adversely affected by the coal ash storage impoundment.

(iii) The person storing coal ash has demonstrated that a replacement water source is technically and economically feasible and readily available for every private water source in the isolation area.

(11) Within 900 feet of the following:

(i) A building that is owned by a school district or school and used for instructional purposes.

(ii) A park.

(iii) A playground.

(12) In areas that serve as habitat for fauna or flora listed as "threatened" or "endangered" under the Endangered Species Act of 1973 (7 U.S.C.A. § 136; 16 U.S.C.A. §§ 4601-9, 460k-1, 668dd, 715i, 715a, 1362, 1371, 1372, 1402 and 1531—1543), the Wild Resource Conservation Act (32 P. S. §§ 5301—5314), 30 Pa.C.S. (relating to the Fish and Boat Code) or 34 Pa.C.S. (relating to the Game and Wildlife Code), unless the applicant demonstrates compliance with applicable Federal and State requirements that would allow operations in those areas.

(c) Temporary coal ash storage piles may not be operated as follows:

(1) Within 100 feet of an intermittent or perennial stream, other than exceptional value or high quality waters as defined in § 93.1.

(2) Within 300 feet of exceptional value or high quality waters as defined in § 93.1.



- (3) Within 100 feet of a wetland, other than an exceptional value wetland.
- (4) In or within 300 feet of an exceptional value wetland.

**§ 290.405. Storage piles—general requirements.**

- (a) A person storing coal ash in piles shall minimize the dispersal of coal ash by wind or water erosion.
- (b) The coal ash being stored shall be separated from the water table by at least 4 feet without the use of a groundwater pumping system. The Department may waive, in writing, this requirement.
- (c) A person storing coal ash in a pile, other than a temporary coal ash storage pile, shall design, install and maintain berms around the storage area and other structures or facilities to collect and, when necessary, treat runoff or leachate, or both, from the storage area. The Department may waive, in writing, the berm requirement when other collection methods are in place.
- (d) For storage piles without a liner system or storage pad, the Department may require the person to install and implement water quality monitoring in accordance with Subchapter D (relating to water quality monitoring) where site conditions warrant.

**§ 290.406. Storage piles—storage pad or liner system.**

- (a) A person that installs a storage pad or liner system to prevent groundwater degradation shall meet the requirements of this section. This section does not preclude a person from using other means to prevent groundwater degradation, such as enclosure in a building.
- (b) The storage pad or liner system must meet the following requirements:
  - (1) Prevent the migration of leachate through the storage pad or liner system.
  - (2) May not be adversely affected by the physical or chemical characteristics of coal ash, coal ash constituents or leachate from the coal ash storage piles.
  - (3) Be designed, constructed and maintained to protect the integrity of the pad or liner during the storage of coal ash.
  - (4) Be designed to collect leachate and runoff.
  - (5) Be constructed of nonsolid waste and noncoal ash material.
  - (6) Be no less permeable than  $1 \times 10^{-7}$  cm/sec., as demonstrated by field and laboratory testing.
  - (7) Be inspected for uniformity, damage and imperfections during construction and installation.
- (c) The person shall install and operate a monitoring system capable of verifying whether coal ash or leachate has penetrated the pad or liner, if required by the Department.
- (d) Coal ash may not be stored where continuous or intermittent contact could occur between the coal ash and groundwater or surface water.

**§ 290.407. Storage piles—leachate and runoff control.**

(a) A person that installs a storage pad or liner system shall collect leachate and runoff from the coal ash pile and divert it into a leachate storage or treatment system.

(b) A leachate storage system must consist of a collection tank or surface impoundment. The tank or impoundment must be:

- (1) Sized for the anticipated leachate and runoff flow, including a 30-day reserve capacity.
- (2) Chemically compatible with the leachate.
- (3) Of sufficient strength to withstand expected loads.
- (4) Equipped with cleanouts, if necessary.
- (5) Sealed to prevent the loss of leachate and runoff.

(c) Collected leachate shall be treated or disposed in a manner that complies with the act, The Clean Streams Law (35 P. S. §§ 691.1—691.1001), and the regulations promulgated thereunder.

**§ 290.408. Storage impoundments—scope.**

(a) This section and §§ 290.409—290.415 apply to persons that store coal ash in surface impoundments prior to beneficial use.

(b) This section and §§ 290.409—290.415 do not apply to the storage impoundments that are designed for the express purpose of storing stormwater runoff and that store runoff composed entirely of stormwater. Impoundments that store stormwater runoff must comply with the applicable requirements of The Clean Streams Law (35 P. S. §§ 691.1—691.1001), section 13 of the Stormwater Management Act (32 P. S. § 680.13) and Chapters 92a, 102 and 105 (relating to national pollutant discharge elimination system permitting, monitoring and compliance; erosion and sediment control; and dam safety and waterway management).

(c) For purposes of this section, “stormwater” means drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

**§ 290.409. Storage impoundments—general requirements.**

A person that operates a storage impoundment to hold coal ash shall meet the following conditions:

- (1) Hold a valid permit from the Department for the storage under sections 308 and 402 and other applicable provisions of The Clean Streams Law (35 P. S. §§ 691.1—691.1001), Chapter 91 (relating to general provisions) and other applicable regulations promulgated thereunder, and shall comply with the permit.
- (2) Comply with Chapter 105 (relating to dam safety and waterway management).

**Cross References**

This section cited in 25 Pa. Code § 290.408 (relating to storage impoundments—scope).

**§ 290.410. Storage impoundments—design requirements.**

Impoundments used to store coal ash must meet the following minimum design criteria:

- (1) The liner system for a coal ash storage impoundment must include the following elements:
  - (i) The subbase, which is the prepared layer of soil or earthen material upon which the remainder of the liner system is constructed.
  - (ii) The leachate detection zone, which is a prepared layer placed on top of the subbase and upon which the liner is placed, and in which a leachate detection system is located.
  - (iii) The composite liner, which is a continuous layer of synthetic material over earthen material, placed on the leachate detection zone. The upper component is no more permeable than  $1.0 \times 10^{-7}$  cm/sec. based on laboratory testing. The composite component is no more permeable than  $1.0 \times 10^{-6}$  cm/sec., based on laboratory testing and field testing.
  - (iv) The protective cover and leachate collection zone, which is a prepared layer placed over the liner in which a leachate collection system is located.
- (2) The bottom of the subbase of the liner system cannot be in contact with the water table without the use of groundwater pumping systems.
- (3) The subbase must meet the following performance standards. The subbase must:
  - (i) Bear the weight of the liner system, coal ash, and equipment operating on the coal ash storage impoundment without causing or allowing a failure of the liner system.
  - (ii) Accommodate potential settlement without damage to the liner system.
  - (iii) Be a barrier to the transmission of liquids.
  - (iv) Cover the bottom and sidewalls of the coal ash storage impoundment.
- (4) The leachate detection zone must meet the following performance standards. The leachate detection zone must:
  - (i) Rapidly detect and collect liquid entering the leachate detection zone, and rapidly transmit the liquid to the leachate treatment system.
  - (ii) Withstand chemical attack from coal ash or leachate.
  - (iii) Withstand anticipated loads, stresses and disturbances from overlying coal ash and equipment operation.
  - (iv) Function without clogging.
  - (v) Prevent the liner from puncturing, cracking, tearing, stretching or otherwise losing its physical integrity.

- (vi) Cover the bottom and sidewalls of the coal ash storage impoundment.
- (5) The liner must meet the following standards of performance:
- (i) The liner must prevent the migration of leachate through the liner to the greatest degree that is technologically possible.
  - (ii) The effectiveness of the liner in preventing the migration of leachate may not be adversely affected by the physical or chemical characteristics of the coal ash or leachate from the coal ash storage impoundment.
  - (iii) The liner must be resistant to physical failure, chemical failure, and other failure.
  - (iv) The liner must cover the bottom and sidewalls of the coal ash storage impoundment.
- (6) The protective cover must meet the following performance standards. The protective cover must:
- (i) Protect the primary liner from physical damage from stresses and disturbances from overlying coal ash and equipment operation.
  - (ii) Protect the leachate collection system within the protective cover from stresses and disturbances from overlying coal ash and equipment operation.
  - (iii) Allow the continuous and free flow of leachate into the leachate collection system within the protective cover.
  - (iv) Cover the bottom and sidewalls of the coal ash storage impoundment.
- (7) The leachate collection system within the protective cover must meet the following performance standards. The leachate collection system must:
- (i) Ensure that free flowing liquids and leachate will drain continuously from the protective cover to the leachate treatment system.
  - (ii) Withstand chemical attack from leachate.
  - (iii) Withstand anticipated loads, stresses and disturbances from overlying coal ash and equipment operation.
  - (iv) Function without clogging.
  - (v) Cover the bottom and sidewalls of the coal ash storage impoundment.
- (8) An onsite leachate storage system shall be part of each leachate treatment method used by the person. The storage system must contain impoundments or tanks for storage of leachate. The tanks or impoundments must have a storage capacity at least equal to the maximum expected production of leachate for a 30-day period. No more than 25% of the total leachate storage capacity may be used for flow equalization on a regular basis. Leachate storage capacity may not be considered to include leachate that may have collected in or on the liner system.
- (9) Leachate may be collected and handled by one of the following:

- (i) Onsite treatment and discharged into a receiving stream under a permit issued by the Department under The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and regulations thereunder, if the Department approves this method in the permit.
  - (ii) Direct discharge into a permitted publicly-owned treatment works, following pretreatment, if pretreatment is required by Federal, State or local law or by discharge into another permitted treatment facility.
  - (iii) Transport to an offsite treatment facility that is operating in compliance with The Clean Streams Law (35 P. S. §§ 691.1—691.1001) and regulations thereunder, and is otherwise capable of accepting and treating leachate from the coal ash storage impoundment.
- (10) Impoundments must be designed, constructed, operated and maintained in accordance with the following:
- (i) An impoundment must have sufficient freeboard to prevent overtopping, including overtopping caused by the 24-hour precipitation event in inches to be expected once in 25 years. The freeboard may not be less than 2 feet.
  - (ii) The dike must have sufficient structural integrity to prevent failure. The liner system of the impoundment may not be considered in determining the structural integrity of the dike.
  - (iii) The inside slope shall be designed and constructed with sufficient protective cover to prevent wind and water erosion, and to preserve the structural integrity of the dike.
  - (iv) The dike must be capable of withstanding anticipated static and dynamic loadings with a minimum safety factor for the most critical failure surface of 1.5 for static loading and 1.2 for dynamic loading.
  - (v) The outside slopes of the dike may not exceed 25% unless the following requirements are met:
    - (A) A horizontal terrace with a minimum width of 10 feet is constructed at each 20-foot vertical rise of the slope, or the Department approves in the permit a terrace with different dimensions.
    - (B) Surface water on the terrace is collected and discharged so that it does not erode or otherwise adversely affect the stability of the dike.
    - (C) The final slope does not exceed 50%.
  - (vi) Dikes and berms must be free of burrowing mammals and plants with root systems capable of displacing earthen materials upon which the structural integrity of the dikes or berms is dependent.
  - (vii) An impoundment must be surrounded by structures sufficient to prevent surface runoff from a 25-year, 24-hour precipitation event from entering the impoundment.

#### Cross References

This section cited in 25 Pa. Code § 290.408 (relating to storage impoundments—scope).

**§ 290.411. Storage impoundments—operating requirements.**

(a) At least 8 feet shall be maintained between the bottom of the subbase of the liner system and the top of the confining layer or the shallowest level below the bottom of the subbase where groundwater occurs as a result of upward leakage from natural or other preexisting causes. The integrity of the confining layer may not be compromised by excavation.

(b) The edge of the liner shall be clearly marked.

(c) A fence or other suitable barrier shall be maintained around the coal ash storage area, including impoundments, leachate collection and treatment systems sufficient to prevent unauthorized access, unless the Department approves, in the permit, an alternative means of protecting access to the area that afford an equivalent degree of protection.

(d) The person shall implement fugitive air contaminant control measures and otherwise prevent and control air pollution in accordance with the Air Pollution Control Act (35 P. S. §§ 4001—4015); Article III (relating to air resources) and § 289.228 (relating to nuisance minimization and control). Minimization and control measures must include the following:

(1) Ensuring that operation of the coal ash storage impoundment will not cause or contribute to an exceedance of an ambient air quality standard under § 131.3 (relating to ambient air quality standards).

(2) Minimizing the generation of fugitive dust emissions from the coal ash storage impoundment.

(e) The person shall implement water quality monitoring, as required under Subchapter D (relating to quality monitoring).

(f) A person that stores coal ash in a coal ash storage impoundment shall remove coal ash from the impoundment as follows:

(1) Without damage to the impoundment.

(2) Inspect the liner to ensure its integrity, and make necessary repairs prior to returning the impoundment to service.

(3) Provide for the beneficial use of the removed coal ash in accordance with this chapter.

(4) Removal from the impoundment shall be sufficient such that the coal ash is not accumulated speculatively.

**Cross References**

This section cited in 25 Pa. Code § 290.408 (relating to storage impoundments—scope).

**§ 290.412. Storage impoundments—failure.**

(a) If a coal ash storage impoundment fails, the person storing coal ash shall immediately:

(1) Stop adding coal ash to the impoundment.

(2) Contain any discharge that has occurred or is occurring.

- (3) Empty the impoundment in a manner approved by the Department, if leaks cannot be stopped.
- (4) Notify the Department of the failure of the impoundment and the measures taken to remedy the failure.
- (b) A coal ash storage impoundment that has been removed from service due to failure may not be restored to service unless the following conditions are met:
  - (1) The impoundment has been repaired.
  - (2) The repair has been certified to the Department, in writing, by a registered professional engineer.
  - (3) The Department has approved, in writing, the restoration of the impoundment to service.
- (c) If a storage impoundment fails and the impoundment or surrounding area cannot be cleaned up in a manner that is satisfactory to the Department, the impoundment shall be closed in accordance with this section.

**Cross References**

This section cited in 25 Pa. Code § 290.408 (relating to storage impoundments—scope).

**§ 290.413. Storage impoundments—inspections.**

The Department will inspect storage impoundments in accordance with the Dam Safety and Encroachments Act (32 P. S. §§ 693.1—693.27).

**Cross References**

This section cited in 25 Pa. Code § 290.408 (relating to storage impoundments—scope).

**§ 290.414. Storage areas—closure.**

Upon cessation of coal ash storage, the person storing coal ash shall remove coal ash and materials containing coal ash, and provide for the beneficial use or disposal of the coal ash and materials under the act and the regulations promulgated thereunder. The person shall also regrade and revegetate the site as required by the Department.

**Cross References**

This section cited in 25 Pa. Code § 290.408 (relating to storage impoundments—scope).

**§ 290.415. Interim requirements for sites where coal ash has been stored.**

For storage sites previously subject to rescinded § 299.153, which pertained to storage and containment of coal ash, the requirements of this subchapter must be met by December 12, 2011, unless the person storing the coal ash demonstrates to the Department's satisfaction through water quality monitoring data that the existing storage is protective of public health, safety and the environment.

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