

**Coal Ash Beneficial Use
563-2112-228**

COMMENT RESPONSE DOCUMENT

December 17, 2016



**Pennsylvania Department of Environmental Protection
Bureau of Mining Programs**

LIST OF COMMENTATORS

1. Ruth E. Baker, P.E.
15 Delbridge Rd.
Boyertown, PA 19512

COMMENTS AND RESPONSES

1. **Comment:** p. i (Disclaimer, last sentence): What circumstances does PADEP foresee that will cause deviation from the policy, and what are those deviations thought to be?

Response: A guidance document does not establish mandatory requirements. It describes the Department's general approach and recommendations for implementing a statute or regulation. The Department has no reliable way to foresee individual circumstances that would account for deviating from the guidance. Such deviations are usually minor and site-specific, and are undertaken on a case-by-case basis to ensure that operators comply with applicable laws.

2. **Comment:** p. 1 II.A.1, first paragraph: This section, which relates to Section 290.201(a)(1), should note what the certification criterion for fluoride is. In the regulations, it is explicitly stated that fluoride is excepted from the nonmetals and anions that equal the waste classification standard, but no special standard is given for it.

Response: The Department has not adopted a certification standard for fluoride. The guidance does not list any of the certification criteria here so there is no value in mentioning fluoride specifically.

3. **Comment:** p. 2, II.A.1, second paragraph: The guidance states that it may require additional sampling of the "as delivered" coal ash—how many samples and what parameters are anticipated to be required, and what authorizes the Department to require additional sampling over what is called for in Section 290.201(b)(5) and (d)? It is noted that Section 290.102(a)(5) allows existing data no more than a year old, from coal ash already approved, to be used, such that not all coal ash requires an initial certification.

Response: Additional sampling would be applicable mostly in the early stages of a project to ensure that the delivered material meets certification requirements and is comparable to the results taken directly from the source plant. It is not prudent to list specific sample frequency and parameters because this would be decided on a site-specific basis dependent upon input by the ash generator and mine site operator. The operator is required under § 290.104(a) to comply with laws ensuring no presumptive evidence of pollution will occur (e.g. 25 Pa. Code § 86.37). Thus, the Department may require additional samples for this demonstration. Section 290.102 applies to beneficial use as structural fill, not use on active coal mines, and so it outside the scope of this guidance. See response to Comment #17.

4. **Comment:** p. 2, II.A.1, second paragraph: How is "little variation" defined in numerical terms for what constitutes a statistically nonsignificant difference between plant and mine site data?

Response: The Department would take into account obvious variations. This is a matter of professional judgment. Though such variation may be acceptable (unless the material no longer meets certification), the Department may question the discrepancy, and would discuss any concerns with the operator to understand the differences between the samples.

5. **Comment:** p. 2, II. A.2, first paragraph, first sentence: What types of lime and cement are allowed—it is assumed that it is all commercially available types?

Response: Conventional lime and cement are used for the stated purposes of dust control and pH adjustment. The material would be tested after inclusion of these additives to ensure the end mixture meets certification criteria.

6. **Comment:** p. 2, II.A.2, first paragraph, last sentence and II.A.3 (first, second, and third paragraphs): Approval for beneficial use for the materials listed should not be limited here to the avenue of a General Permit (the reference here of 25 Pa. Code 290.2 in turn references 25 Pa. Code 287, Subchapter H, which also includes exclusions from general permits (e.g. 287.611(e)), waivers and modifications of requirements (e.g. 287.632(b)), and individual permits (e.g. 287.612(c)). Section 290.2 states a “permit,” without specifying the type, but references Subchapter H of 25 Pa. Code 287).

Response: The Department has revised this section to refer to a permit issued under Chapter 287. The most common manner in which an operator beneficially uses this material on mine sites is through a General Permit, so the section about General Permits has been retained.

7. **Comment:** p. 3, II.A.5, paragraph 2, first sentence and paragraph 3, first sentence: 290.201(b)(7) simply requires an analysis of hydraulic conductivity in cm/sec. It does not specify quarterly sampling or annual sampling. The point of measuring as-generated uncompacted ash hydraulic conductivity is not clear, as it is in its compacted or in-place form at the mine site that the hydraulic conductivity must meet the design criteria for the purpose for which the ash is being used. This as-supplied testing should be minimized, and the focus be placed on as-placed ash hydraulic conductivity, for those projects for which the ash is being used to restrict flow of infiltrating water. Beneficial use requirements should be sustainable to the extent possible, and requiring extra analytical testing that does not have a purpose related to the in-field design is not sustainable.

Response: The paragraph following the cited location contains details regarding the frequency of testing based on use. Hydraulic conductivity data provides information to evaluate the physical properties of ash in the context of the mine site as a whole, regardless of whether it is being used as a low permeability material. Such information is useful to assess the effect of beneficial use of coal ash consistent with requirements of § 87.69 and § 88.49 (pertaining to protection of hydrologic balance). Since the test is cumbersome and may not be necessary on a quarterly basis, the Department included the option of a reduction of testing frequency.

8. **Comment:** p. 6, II.A.6, paragraph 2, first sentence: What are the analytes required to be sampled? Note that 290.201(d)(2) calls for a single sample, not “additional sampling” and that the sampling is required not when it “may result in a change to the chemical constituents of the coal ash” but only by a change that “could result in a significant increase in a coal ash chemical parameter or a change in physical properties...”

Response: Typically, all of the analytes should be included in the sample results for additional sampling due to a change in the generation process. However, a subset of parameters may be sufficient depending upon the specific change that has been made. The operator can make that demonstration to the Department. The operator always has the obligation to demonstrate that the ash meets the certification limits at all times.

9. **Comment:** p. 6, II.A.6, paragraph 4, first sentence: What are the additional analytes and sampling frequency/extent contemplated over and above that required in the regulations? Mine

site permit special conditions for post-approval monitoring should comply with the 290.201(d) regulations and not exceed them.

Response: The Department is unable to identify all possible scenarios that may require increased sampling frequency or additional parameters to sample. The Department could exercise this discretion in light of atypical site conditions or history or in the event of a spill or placement of some foreign material, to determine if there is a pollution event occurring. The mining permit Special Conditions would not exceed the regulations but ensure operator compliance with additional environmental laws.

10. **Comment:** p. 6, II.A.7, first sentence: The “criteria levels” are not defined--should they be called “certification standards,” per 290.203, for clarity?

Response: The Department agrees and has changed the language to read to “certification standards criteria.”

11. **Comment:** p. 8, II.A.11: Section 290.201(e) states that notification is required when “coal ash may not meet certification requirements,” not as the draft Guidance says, when there is simply “a change in ash quality, or an exceedance [not stated of what] noted.” Use of the term “a change” does not necessarily reflect exceedance of certification requirements; this language should be changed to reflect the regulation text.

Response: The Department looks for consistency in the ash product from each certified source and expects a minor amount of deviation because of various factors. Based on over 20 years of experience analyzing ash data, the Department readily identifies a problem with the ash quality results. This section does not reiterate the regulation, but explains when the generator, who is expected to be reviewing the quality data to ensure it remains consistent, should notify the Department of problems. The Department understands “exceedance” to mean any value outside of the certification standards. The Department added the word “substantive” before “change in ash quality” to emphasize that minor changes will not require notification, only differences that may indicate a problem with ash quality and consistency.

12. **Comment:** p. 9, II.B.3.a, paragraph 2, first sentence and p. 11, II.B.3.c, last sentence: What is the basis for stating that best management practices call for at least 4 ft of cover over coal ash? In some parts of the state, there is not that much topsoil and subsoil combined overlying bedrock. The municipal waste regulations (25 Pa. Code 273.234(a)(3)) call for a minimum 2 ft. of cover in the final cap. Why is that depth not adequate cover for coal ash as well?

Response: The Department’s basis for this best management practice is its experience in implementing the beneficial use of coal ash for mine reclamation in the anthracite region of Pennsylvania. The Department documented this experience in Table 3.4 of the publication *Coal Ash Beneficial Use in Mine Reclamation and Mine Drainage Remediation in Pennsylvania* (PA DEP 2004). The practice allows for establishment of an adequate root penetration zone for plants and shrubs considering that compacted coal ash will serve as a root barrier unlike conventional backfill. A smaller thickness of cover may inhibit revegetation of the site. The operator has the option of manufacturing soil using coal ash as a (non-compacted) soil amendment along with organic material to increase the thickness of the final cover.

13. **Comment:** p. 10, II.B.3.b, top of page and p. 11, II.B.3.d, fourth paragraph: Are there other specific tests that the Department would approve that would enable calculation of neutralization potential?

Response: The test for acid neutralization potential is given in § 290.201(a)(3) referencing the Department's Overburden Sampling and Testing Manual (Noll, et al., 1988).

14. **Comment:** p. 10, II.B.3.b, second paragraph: The Alkaline Addition for Surface Coal Mines guidance is cited; however, p. 1, I, paragraph 2 of this draft December 2014 Guidance states that the draft December 2014 Guidance replaces all previous guidance documents on the beneficial use of coal ash at mine sites. Does the Alkaline Addition guidance conform to the requirements of the draft Guidance, or is it superseded?

Response: The alkaline addition process on surface coal mines must include material other than coal ash. The existing guidance in reference to alkaline addition remains applicable and does not conflict with this guidance.

15. **Comment:** p. 12, II.C.1.b, second paragraph: What are the criteria for the District Mining Office to decide that it is acceptable for coal ash to come onto a given mine site?

Response: [Note: The comment should indicate page 13, not 12.] The mine site operator submits the Module 25 of the permit application addressing Beneficial Use of Coal Ash for the site. The operator must demonstrate that the proposal will serve some beneficial use and the proposal must comply with the appropriate Chapters 86, 87, 88 and/or 90 of the coal mining regulations. Only certified coal ash sources can be used on a permitted mine site.

16. **Comment:** p. 12, II.C.1.c, first sentence: Public notice requirements are not required for all beneficial uses of coal ash at all mine sites; this is correctly stated later in the paragraph, in agreement with Section 290.103. For example 290.102 and 290.105 require public notice for specified large projects; active mine sites, per 290.104, require public notice in all cases, it appears. This section needs to be clarified, or the pertinent regulations referenced.

Response: [Note: The comment should indicate page 13, not 12.] The first sentence of this section clearly states that "Public notice, pursuant to § 86.31 and § 86.54, is required when beneficial use of coal ash is proposed at a mine site." The Department will add the word "initially" to this section to clarify that only the initial proposal is subject to public notice (the regulations are already cited). The Department feels the rest of the paragraph is clear with regards to public notice. Note that § 290.102 (Use as structural fill) and § 290.105 (Beneficial Use at Abandoned Mine Lands) are not pertinent to this document which only covers permitted mine sites.

17. **Comment:** p. 12, II.C.1.c: 25 Pa. Code 290.102(c) and 290.105(c) both note that public notice would be required for projects of up to 10,000 tons/acre or 100,000 tons total if the Department concluded that a given project would be of significant public interest or if site conditions warranted. The draft Guidance should explain what specific factors would lead PADEP, for these two reasons, to require more public notice than what the regulations call for, for structural fill and abandoned mine beneficial use projects.

Response: [Note: The comment should indicate page 13, not 12.] This guidance does not apply to structural fill as a beneficial use of coal ash (§ 290.102) or to uses on abandoned mine lands (§ 290.105). Structural fill is not an approved beneficial use on an active mine site. See Page 8 (B) Types of Beneficial Use, 1st paragraph that clarifies uses on active mine sites.

In order to clarify that this guidance is applicable only to active mine sites, a referral to applicability of §§ 290.102 and 290.105 have been added to the Background section on Page 1.

18. **Comment:** p. 12, II.C.1.d, second sentence: 25 Pa. Code 290.102 only requires recording of the landowner consent for projects in excess of 10,000 tons/acre or 100,000 tons total, not for all structural fill projects. The second sentence in Item C.1.d should be modified to reflect this.

Response: [Note: The comment should indicate page 13, not 12.] See response to #17.

19. **Comment:** p. 14, II.C.2.b, paragraph 1, last two sentences: What specific criteria will be used by the Department to conclude that existing monitoring points are insufficient to characterize effects of coal ash placement? Would PADEP be expecting that off-site monitoring points might be required, and (if so), how would the ability to obtain landowner access be assured?

Response: § 290.302 (a) states that the monitoring plan “shall accurately characterize groundwater and surface water flow.” Off-site monitoring is often desirable, typically utilizing mine outfalls or boreholes as monitoring points. The operator is encouraged to get permission to install or use monitoring points offsite from the applicable landowner. But if there is an unresolvable conflict, the operator has the option of installing monitoring points on the permitted site.

20. **Comment:** p. 15, II.C.2.b, first sentence at top of page: What volumes of water are defined as adequate to enable appropriate data collection and interpretation? What if such adequate points cannot be located on the property after, for example, two tries? Repetitive drilling until one locates “good” water sources is quite expensive and should not be an open-ended requirement.

Response: The permittee must conform with § 290.302 (a) (see Response to Comment #19). The Department will consult with operators to determine an adequate plan. Volume of water is adequate if there is enough to consistently obtain a representative sample (except in extreme circumstances, i.e., drought).

21. **Comment:** p. 15, II.C.2.b, second full paragraph, last sentence: For clarity, please cite the regulations (290.301(e) and 290.301(f)) that govern the analytes for background and monitoring sampling.

Response: The Department agrees with this comment and has added the citations.

22. **Comment:** p. 15, II.C.2.b, third full paragraph: Please give examples of what additional parameters the Department may require, given that the 209.301(e) and (f) requirements are rather extensive.

Response: In the event of a spill, or pollution event, the Department may request the operator sample indicator parameters which are outside the required suite. This would be an unlikely and atypical circumstance.

23. **Comment:** p. 15, II.C.2.b, fifth, sixth, and seventh full paragraphs: What criteria/test approaches will be used to show statistically that there is no evidence of groundwater degradation and no sign of increasing contamination? A qualitative assessment of such key conclusions is inappropriate, given the significance of such a finding.

Response: The criteria are in § 290.304(a)(1). If data obtained from water quality monitoring by the Department or the person indicates statistically significant degradation, 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).

24. **Comment:** p. 16, II.C.2.c, paragraph 2: Note that the referenced PADEP form 5600-PM-MR0014 to be provided does not include field-measured temperature, which the regulations in 290.301(e) require to be monitored.

Response: The Department agrees with this comment and has modified the form (5600-PM-BMP0014) to include temperature.

25. **Comment:** p. 16, II.C.2.c, paragraph 3: This section should correct the mercury drinking water standard and reference the appropriate regulatory sections for the drinking water standards intended to be used as the reference for detection limits. The drinking water standards that include mercury in Pennsylvania are stated in 25 Pa. Code 109.202(a)(2) to include the federal ones in 40 CFR 143.62(b), which limit mercury to 0.002 mg/l, not the 0.002 ug/l given in this paragraph.

Response: The Department agrees with this comment and has changed µg/l to mg/l.

26. **Comment:** p. 16, II.C.3.a, first line: Please add a definition of “closed loop” in this draft Guidance as it relates to the 290 regulations.

Response: The regulation that gives the definition of “closed loop” is cited in this section.

27. **Comment:** p. 17, II.C.3.a, last paragraph: How will it be determined from a statistically significant standpoint whether as-received and on-site results “differ”? A statistically insignificant difference should not be warrant informing the Bureau of Mining Programs.

Response: The last paragraph has been removed since the Department could not expect that the generator and mine site operator would be aware of each other’s results prior to submission to the Department.

28. **Comment:** p. 17, II.C.3.b, first sentence and second paragraph second sentence: What will be the maximum frequency contemplated by the Department for field density tests over and above the semiannual frequency?

Response: The Department is unable to identify the “maximum frequency.” Additional testing would be pursuant to the specific circumstances of the problem or concern that may justify an increased sampling rate.

29. **Comment:** p. 18, II.D, second paragraph: Section 290.102(b) states that such reports are required if greater than 10,000 tons/acre or 100,000 tons total are proposed to be placed on a site. The requirements of 290.103 (soil additive/substitute use) do not call for annual reports. The text in the second paragraph thus incorrectly suggests that all coal ash projects must do annual reports.

Response: Any beneficial use of coal ash on an active mine site must meet § 290.104. The annual report is a requirement under subsection (j) of this section. Note that this TGD pertains only to use on *active mine sites*, not beneficial use as soil additive on other types of sites.

30. **Comment:** p. 18, II.E, second paragraph, first sentence: 25 Pa. Code 290.201(e) states that “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.” It appears that instead, the regulatory citations that pertain to the discussion in the second paragraph are 290.102(i), 290.103(g), 290.104(k), and 290.105(g), which require (not say should) that notification is to be made “to the Department within 72 hours of any evidence that the material does not meet the certification requirements in § 290.201.”

Response: Section 290.201(e) is applicable here and covers certified sources of coal ash. While the other citations also would apply (except for § 290.102 and § 290.105, see response to #17), this is the appropriate citation.

31. **Comment:** p. 18, II.E, last paragraph: Please cite the regulation section that requires (except for projects falling under 290.103(f) and 290.106(c)) that the operator keep records of where (assumed horizontal and vertical location) each source of ash was placed over the history of a given project. If only the cited regulation sections require this recordkeeping, please note that in the Guidance.

Response: The cited reference states the operator “should have knowledge of where each source is placed.” Because this guidance provides information that is recommended to the operator for his benefit, and it is not a requirement, there is no regulation citation needed.

Other comments

Some minor changes were made to the final document in response to internal comments received.