

US EPA ARCHIVE DOCUMENT

CCW MINEFILL MANAGEMENT PRACTICES DISCUSSION GUIDE¹

October 22, 2001 – DRAFT

Outline

- I. **General**
Regulating agencies, program structure
- II. **Planning/Permitting**
Permit requirements, type/source of CCW, number of permits, quantity of waste, acid/base balances, reclamation plans, operational plans, closure/post-closure plans, future uses
- III. **Waste Characterization**
Timing (before/during placement), testing methods, parameters, performance standards/waste characterization limits
- IV. **Site Characterization**
Types of data, hydrology, criteria for acceptability, liners
- V. **Risk Assessment**
Formal assessment/modeling, methods/criteria
- VI. **Ground Water Monitoring**
Monitoring system design, timing (during placement/post-closure), frequency, location, parameters, performance standards/enforceable limits
- VII. **Surface Water Monitoring**
Monitoring system design, timing (during placement/post-closure), frequency, location, parameters, performance standards/enforceable limits
- VIII. **Placement Practices**
Appropriate practices for: underground mines, surface mines, active mines, closed mines, proximity to water table, grouting, soil conditioning, mine sealing, subsidence control, spoil encapsulation
- IX. **Operational Requirements/Design Requirements**
Dust controls, erosion/flooding controls, runoff controls, leachate collection, re-vegetation, access controls, post-closure maintenance
- X. **Corrective Action**
Circumstances/triggers for action, action measures, existing damage cases
- XI. **Financial Assurance**
Mechanisms, liability, bond release
- XII. **Reporting**
Inspection frequency (pre-, during, and post-placement), monitoring data review, compliance evaluation
- XIII. **Public Participation**
Availability of data (pre-, during, and post-placement), compliance participation

¹ This document is a draft prepared by the U.S. Environmental Protection Agency (EPA). It is being used to guide discussions with State and Tribal mining regulatory authorities on coal combustion waste (CCW) minefill management practices. This draft list of discussion items is part of an information collection effort and is subject to change. It is not a proposed model for CCW minefill regulation.

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Interviewee Names:

Interviewee Agency:

Interview Date:

I General

1. Is there a distinction between disposal and beneficial use?
 - 1.1 How is the distinction made (e.g., waste quantity, placement type)?
2. Under what program(s) does the state regulate mine placement (e.g., state SMCRA implementing regulations, state solid waste program)?
3. Are there differing requirements/policies applicable to different types of CCW (e.g., fly ash vs. FGD wastes)?
4. Are there differing requirements/policies applicable for different types of placement?
5. Are there differing requirements/policies applicable for different kinds of mines (e.g., coal vs. non-coal mines such as quarries)?

II Planning/Permitting

1. Are mine facilities required to obtain permits for CCW placement?
2. Who issues the appropriate permits?
3. Do the permits contain project-specific conditions or requirements?
4. Are there environmental justice considerations in the permitting process?
5. Is the operator required to identify:
 - 5.1 The type of CCW to be minefilled?
 - 5.2 The source of the CCW?
 - 5.3 The quantity of CCW to be minefilled?
6. How many permits have been authorized in the State for CCW mine placement?
7. What is the total quantity of CCW minefilled in the State per year?
8. Are operators required to address acid/base balances prior to placement?
 - 8.1 What procedures are used to conduct acid/base balances?
 - 8.1.1 What are the shortcomings of these procedures, if any?
 - 8.1.2 What is the long-term reliability of these procedures?
9. Is a reclamation plan required?
 - 9.1 Is the plan required to specifically address the use of CCW?
 - 9.2 What must the plan include?
 - 9.3 What are the standards for reclamation (i.e., how is the end-point of reclamation

defined)?

10. Is an operational plan required?
 - 10.1 Is the plan required to specifically address the use of CCW?
 - 10.2 What must the plan include?
11. Is a closure plan and/or post-closure plan required?
 - 11.1 Is the plan required to specifically address the use of CCW?
 - 11.2 What must the plan include?
12. Are there procedures and criteria for determining what future uses are acceptable following closure?
 - 12.1 How is the public involved in this determination?
 - 12.2 If use is restricted, what protects against inappropriate uses?

III Waste Characterization

1. Is characterization of the CCW conducted prior to placement?
 - 1.1 What analytes are measured?
 - 1.2 What is the testing method used?
 - 1.3 Are there numerical waste acceptance/rejection criteria?
 - 1.3.1 If so, what are they?
 - 1.3.2 If not, how are waste characteristics considered in pre-placement and planning?
2. Is ongoing waste characterization required during placement?
 - 2.1 How do the analytes, testing methods, or waste acceptance/rejection criteria differ from those used prior to placement?
 - 2.2 What is the required frequency of characterization?
 - 2.3 How often is the waste characterization data reviewed by the appropriate regulatory agency?
3. What is the basis for any numerical acceptance/rejection criteria?

IV Site Characterization

1. Is characterization of the site required prior to placement?
 - 1.1 What factors are examined in characterizing a site?
 - 1.2 What are the criteria for accepting/rejecting a site?

2. Is consideration of the site hydrology (e.g., a probable hydrologic consequences determination under SMCRA) required?
 - 2.1 Does this consideration specifically address the use of CCW?
 - 2.2 What are the hydrologic criteria for site acceptance/rejection?
 - 2.3 Does consideration of site hydrology specifically address both ground water and surface water?
 - 2.4 What time period does PHC determination or other consideration of site hydrology address?

3. Is background groundwater monitoring data required prior to placement?
 - 3.1 What analytes are measured?
 - 3.2 How are the sampling locations selected?
 - 3.3 How much data is required before placement?

4. Is background surface water monitoring data required prior to placement?
 - 4.1 What analytes are measured?
 - 4.2 How are the sampling locations selected?
 - 4.3 How much data is required before placement?

5. Is the use of liners considered in site characterization?
 - 5.1 If a site is determined to be unacceptable for CCW placement, can it be made acceptable through the use of liners?

6. Are there any restrictions on the type of sites that can accept CCW?

V Risk Assessment

1. Is a formal risk assessment performed?
 - 1.1 Is it based on site-specific, regional or other (please specify) data?
 - 1.2 Describe the steps taken in this assessment.
 - 1.3 Who conducts the assessment?

2. Are specific air, surface water, and ground water models, equations, etc., used to assess risk or impacts?
 - 2.1 What models are used?
 - 2.2 What is the State's experience with these models (e.g., ease of use, value of results)?

3. How are the risk assessment results expressed? {e.g., monetization of potential damages, calculated incremental health risks (illness, deaths), negative risk (i.e., benefits outweigh negative impacts), rationalization (e.g., aquifer is not potable anyway), comparative (current/future use of the resource)}.
4. How are the results interpreted to determine the level and acceptability of impacts to receptors?
 - 4.1 Who is responsible for interpreting the results?
5. If no risk assessment is completed, is there a presumption that placement is acceptable if certain criteria are met? (e.g., leachate characteristics, distance to ground water, liner placement, historical experience of the regulatory authority).
 - 5.1 Please list the pass/fail criteria below.

VI Ground Water Monitoring

1. Is a ground water sampling and analysis plan required?
2. Is groundwater monitoring required during placement?
 - 2.1 What analytes are measured?
 - 2.2 How are the number of wells, well locations, and screening zones selected?
 - 2.3 What is the frequency of monitoring?
3. Is post-closure ground water monitoring required?
 - 3.1 If so, how does it differ from ground water monitoring conducted during placement (analytes monitored, frequency, etc.)?
4. Can ground water monitoring be discontinued?
 - 4.1 What are the criteria for discontinuing ground water monitoring?
5. How is ground water monitoring designed to specifically detect/distinguish the effects of CCW placement?
6. How are large expanses dealt with?
7. How is existing ground water contamination dealt with as part of the monitoring program?
8. What water quality standards/criteria must be met?
9. Are alternative monitoring methods allowed?
 - 9.1 What alternative monitoring methods are allowed?

VII Surface Water Monitoring

1. Is a surface water sampling and analysis plan required?
2. Is surface water monitoring required during placement?
 - 2.1 What analytes are measured?
 - 2.2 How are sampling locations selected?
 - 2.3 What is the frequency of monitoring?
3. Is post-closure surface water monitoring required?
 - 3.1 How does it differ from surface water monitoring conducted during placement (analytes monitored, frequency, etc.)?
4. Can surface water monitoring be discontinued?
 - 4.1 What are the criteria for discontinuing surface water monitoring?
5. How is surface water monitoring designed to specifically detect/distinguish the effects of CCW placement?
6. How is background surface water quality assessed?
7. What water quality standards/criteria must be met?

VIII Placement Practices

1. What types of CCW placement are allowed (i.e., into active mines, closed mines, surface mines, underground mines, etc.)?
2. Is placement into the water table allowed?
 - 2.1 If so, under what conditions?
 - 2.2 If not, how close to the water table is placement allowed?
 - 2.3 If a liner is required beneath the CCW, what are the design/performance standards for the liner?
3. Is placement into mine pools allowed?
 - 3.1 What placement techniques are used?
 - 3.2 Are there additional/special monitoring requirements after placement into a mine pool?

4. Are there specific design/operational requirements for the following types of projects and, if so, what are they?
 - 4.1 Placement into underground mines?
 - 4.2 Placement into surface mines?
 - 4.3 Grouting?
 - 4.4 Acid mine drainage remediation?
 - 4.5 Soil conditioning?
 - 4.6 Mine sealing?
 - 4.7 Subsidence control?
 - 4.8 Spoil encapsulation?

IX Operational Requirements/Design Requirements

1. How is the potential for flooding/washout addressed?
2. Are runoff controls used/required?
3. Are leachate collection systems used or required?
 - 3.1 Under what conditions?
 - 3.2 What are the design criteria?
4. Is waste conditioning required?
 - 4.1 What waste conditioning methods are allowed?
 - 4.2 What design criteria exist for waste conditioning?
5. What fugitive dust controls are used or required:
 - 5.1 During transport and discharge from transport vehicles?
 - 5.2 During/following placement?
6. Is a cover or cap required over the CCW?
 - 6.1 What are the design/performance criteria?
 - 6.2 What kind of cover materials are required?
 - 6.3 What minimum/maximum slopes are allowed for final cover?
 - 6.4 What compaction criteria/standards apply to the cover/cap?
 - 6.5 What are the maintenance standards for covers/caps?
7. Is re-establishment of surface streams required?
 - 7.1 What determines when it is appropriate and how it should be done?
 - 7.2 What are the design criteria?
8. Is contouring of waste so water drains away from the fill required?
 - 8.1 When is it appropriate to contour wastes?
 - 8.2 What are the minimum slope and compaction criteria?
9. Is re-vegetation required?
 - 9.1 What are the design criteria?
 - 9.2 What kinds of plants are used?
 - 9.3 What kinds of topsoil/compost are required?
10. Is the operator required to restrict public access to the waste and facility?
 - 10.1 What design/performance standards or criteria apply?

11. What are the post-closure maintenance requirements (e.g., maintaining cover integrity and effectiveness, slopes, vegetation, etc.)?
12. How long is the owner/operator responsible for post-closure maintenance?
13. What other operational requirements exist?

X Corrective Action

1. Under what circumstances are corrective actions required/what is the trigger for a corrective action?
2. What types of corrective action measures are appropriate?
3. Does the state have any damage cases?

XI Financial Assurance

1. Is financial assurance required?
 - 1.1 What types of financial assurance mechanisms are allowed?
2. What is the period of liability?
3. What is the amount of financial assurance required?
4. What are the conditions for bond release?
5. Is there a separate State liability fund?
 - 5.1 What is the source of money for this fund?

XII Reporting

1. How frequently is monitoring data on wastes, ground and surface water reported to the government?
2. Is the data maintained at the facility?
3. How often are sites inspected?
4. How often is compliance with permit requirements, performance standards, enforceable limits, etc., evaluated?
 - 4.1 Who is responsible for this evaluation?
5. What are the post-closure reporting requirements?
6. How frequently does the regulatory authority inspect the closed facility, and what are the criteria for terminating inspection?

XIII Public Participation

1. Prior to permit issuance, does the public have an opportunity to review and comment on monitoring (surface and ground water) and/or modeling data and Probable Hydrologic Consequences determination?
 - 1.1 What other opportunities for public involvement are there in the permitting process?

2. Is monitoring data available to the public?
3. What opportunity does the public have to participate in overseeing compliance at the site?
4. How does the public have access to post-closure reports?
5. Are citizen actions allowed?
 - 5.1 What types of actions are allowed (e.g., petitions, suits)?
 - 5.2 Who adjudicates citizen actions (e.g., permitting agency, administrative law judge, State court, federal court)?