

US EPA ARCHIVE DOCUMENT

MINE PLACEMENT OF COAL COMBUSTION WASTE STATE PROGRAM ELEMENTS ANALYSIS

Working DRAFT – do not cite or quote
October 26, 2001

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Mine Placement of Coal Combustion Waste State Program Elements Analysis

This document summarizes elements of State regulatory programs applicable to the placement of coal combustion waste (CCW) in surface or underground mines. *This document does not comment on the adequacy of individual State programs*; it summarizes the program elements of 22 States. This analysis is in the form of tables that identify the program elements pertaining to mine placement oversight in each State. Most of the information presented here (Tables 1 through 5) pertains to CCW placement in coal mines only. EPA has not yet completed research on regulatory programs for non-coal mines; Table 6 presents the available information on non-coal mine placement.

The information presented in this document is summarized from the detailed analysis conducted in *Regulation and Policy Concerning Mine Placement of Coal Combustion Waste in 26 States* (DRAFT, July 2, 2001). The 26 States covered in that document are those with the largest number of coal mines, which includes all of the members and associate members of the Interstate Mining Compact Commission (IMCC), except North Carolina, South Carolina, and New Mexico. This document covers 22 of the 26 States covered in the detailed analysis. Louisiana, Michigan, Oklahoma, and Utah are not included in this document because there is currently no placement of CCW in coal mines in these States and EPA has not yet identified the applicable regulatory requirements.¹

The applicable programs in many States operate under the authority of the Federal Surface Mining Control and Reclamation Act of 1977 (SMCRA). SMCRA requires that State regulations be at least as stringent as Federal regulations promulgated by the U.S. Department of Interior Office of Surface Mine Reclamation and Enforcement (OSM). As a result, the tables presented herein use the following conventions to describe program elements:

- For program elements that are included in the Federal SMCRA regulations, the tables show:
 - “S” for States whose program is substantively similar to that required under SMCRA.
 - “S+” for States whose program is more stringent or has requirements in addition to those required under SMCRA.
- For program elements that are not covered by Federal SMCRA regulations, the tables show:
 - A checkmark for States whose program includes the program element.
 - A blank for States whose program does not include the program element.
 - “CBC” for States that apply the program element on a case-by-case basis.
 - “?” for States where the presence of the program element could not be determined by EPA.

The following sections provide definitions of the program elements specified in each column of the tables. Note that some States have additional program elements that are not covered by the columns in the tables.

Table 1: Administrative Program Elements

Address CCW in SMCRA Permit

¹ The Navajo Nation is not included in this draft analysis, but will be included in the final version.

SMCRA requires a permit covering all coal mining and reclamation operations. Fourteen of the 22 States require that this SMCRA permit specifically address CCW placement (e.g., through identification of the CCW placement areas in the permit application).²

Action Item: EPA could not identify whether the other eight States explicitly address CCW placement in SMCRA permits.

Type of Revision to SMCRA Permit

When CCW placement is proposed following the issuance of a SMCRA permit, seven of the 22 States treat the proposal as a major permit revision. Two States treat this a minor permit revision. Three States determine the type of revision on a case-by-case basis.

Action Item: EPA could not identify the type of permit revision for the other 10 States.

Additional Permit, Notification, or Approval

12 of the 22 States require some form of regulatory agency approval prior to CCW placement in addition to (i.e., outside of) the SMCRA permit (e.g., a State solid waste permit).³ Two more States determine the need for additional approval on a case-by-case basis (e.g., depending on the characteristics of the CCW).

Public Participation in Permitting

SMCRA requires public participation (public notice, comment, and access to the permit application and final decision) for an application for a permit, a major (but not minor) revision of a permit, or a renewal of a permit. Thus, SMCRA public participation requirements would be applicable to CCW placement projects in States where (1) the SMCRA permit addresses CCW placement, and (2) proposals to place CCW are treated as major permit revisions. Some States have additional public participation provisions (e.g., as part of their solid waste permitting program). In total, 10 of the 22 States incorporate public participation in permitting.⁴ Five more of the 22 States determine the need for public participation on a case-by-case basis.

Action Item: EPA could not identify whether there is public participation for permitting in the other seven States.

Public Availability of Monitoring/Inspection Data

² Two of these States do not require a SMCRA permit at all for CCW placement projects that are defined as disposal (as opposed to beneficial use) under their programs.

³ In three of these States, the need for additional approval depends on whether a project is classified as disposal or beneficial use by the State.

⁴ In three of these States, the need for public participation depends on whether a project is classified as disposal or beneficial use by the State.

This program element covers whether members of the public have access to ongoing monitoring results and inspection reports.

Action Item: EPA has not yet completed identification of this program element.

Public Participation in Compliance

This program element covers whether members of the public have the opportunity to participate in compliance assessment or the implementation of compliance activities for projects subject to compliance action.

Action Item: EPA has not yet completed identification of this program element.

Table 2: Planning and Enforcement Program Elements

Address CCW in Reclamation Plan

SMCRA requires a reclamation plan that provides for the protection of the environment and public safety. Thirteen of the 22 States require that the reclamation plan specifically address CCW placement (e.g., through inclusion of a CCW placement plan).⁵

Action Item: EPA could not identify whether the other nine States specifically address CCW placement in the reclamation plan.

Address CCW in Site Characterization/PHC Determination

SMCRA requires that the reclamation plan include characterization of the mine site (e.g., geologic and hydrologic information). SMCRA also requires a hydrologic reclamation plan specific to local conditions and a probable hydrologic consequences (PHC) determination. these site characterization and planning activities. Ten of the 22 States require that these site characterization and planning activities specifically address CCW placement (e.g., through background monitoring surrounding the placement area).⁶

Action Item: EPA could not determine whether the other 12 States specifically address CCW placement in these activities.

Siting Restrictions

⁵ In three of these States, the need to address CCW placement in the reclamation plan depends on whether a project is classified as disposal or beneficial use by the State.

⁶ In two of these States, the need to address CCW placement depends on whether a project is classified as disposal or beneficial use by the State.

SMCRA places restrictions on where surface coal mining operations, in general, may be conducted (e.g., not within 300 feet of occupied dwellings, parks, or public buildings). Twelve of the 22 States have additional, more stringent location standards specifically for CCW placement.⁷

Address Acid Mine Drainage/Acid-Base Balance

Four of the 22 States have special requirements applicable to CCW placement when acid mine drainage is present or when the placement is designed to remediate acid mine drainage.⁸ Examples of such requirements include characterization of the neutralization potential of the CCW or complete acid-base accounting for the CCW and the placement environment.

Risk Assessment Focused on CCW

This means that a formal risk assessment is required as part of the planning process for CCW placement.

Action Item: EPA has not yet completed identification of this program element.

Enforceable Limits/Corrective Action Requirements

SMCRA requires compliance with all applicable Federal and State water quality requirements and with all permit conditions. In the event of noncompliance with a permit condition, permittees must take all possible steps to minimize adverse impacts, including, but not limited to: accelerated or additional monitoring and implementation of compliance measures. Eight of the 22 States have enforceable limits (e.g., numerical standards) specific to CCW placement projects and/or more specific corrective action requirements (e.g., identifying when corrective action is required and/or what measures should be taken) applicable to CCW placement projects.⁹

Table 3: Waste Characterization and Monitoring Program Elements

Waste Characterization

Eighteen of the 22 States require chemical analysis (e.g., through leachate testing) of CCW prior to the start of placement.¹⁰ Eight of these States also require ongoing characterization during placement (e.g.,

⁷ One of these States has more stringent requirements only for projects that are defined as disposal (as opposed to beneficial use) by the State.

⁸ In two of these States, the requirements depend on whether a project is classified as disposal or beneficial use by the State.

⁹ Three of these States have more stringent requirements only for projects that are defined as disposal (as opposed to beneficial use) by the State.

¹⁰ In one of these States, pre-placement waste characterization is required only for projects classified as disposal (as opposed to beneficial use) by the State.

quarterly, annually, or when the source of the CCW changes).¹¹ Fourteen States have specific numerical standards that CCW must meet before being considered acceptable for placement.¹²

Groundwater Monitoring

SMCRA requires groundwater monitoring to be designed on a site-specific basis based on the PHC determination. At a minimum, SMCRA requires monitoring for four parameters, with submission of data every three months, that continues until bond release. Twelve of the 22 States have additional or more stringent requirements (e.g., more minimum parameters, specific monitoring of the CCW placement area) for monitoring during CCW placement.¹³ Five more States determine the need for additional monitoring for CCW placement projects during placement on a case-by-case basis. Six of the 12 States extend their more stringent monitoring requirements to the post-closure period.¹⁴ Seven more States determine the need for additional post-closure monitoring on a case-by-case basis.

Surface Water Monitoring

This program element covers whether States require more stringent or additional surface water monitoring than that required by SMCRA.

Action Item: EPA has not yet completed identification of this program element.

Table 4: Design and Operational Program Elements

Groundwater Table Restrictions

Nine of the 22 States require that CCW be placed a certain minimum distance (e.g., eight feet, four feet) above the water table.¹⁵

Compaction or Other Waste Conditioning

¹¹ In one of these States, ongoing waste characterization is required only for projects classified as disposal (as opposed to beneficial use) by the State.

¹² In two of these States, the applicability of the waste characteristic limits depends on whether a project is classified as disposal or beneficial use by the State.

¹³ In three of these States, the need for more specific monitoring depends on whether a project is classified as disposal or beneficial use by the State.

¹⁴ In one of these States, more specific post-closure monitoring is required only for projects is classified as disposal (as opposed to beneficial use) by the State.

¹⁵ In two of these States, the applicability of the water table restrictions depends on whether a project is classified as disposal or beneficial use by the State.

Six of the 22 States have requirements regarding compaction of CCW during placement.¹⁶ Four of these States require compaction; the other two require that applicants describe procedures for compaction in the operating plan.

Interim Cover

Two of the 22 States require periodic (e.g., daily) cover over the CCW during placement.¹⁷

Fugitive Dust Controls

SMCRA requires an air pollution control plan for mine sites. Eleven of the 22 States have explicit requirements for fugitive dust control specifically for CCW placement.¹⁸

Erosion/Surface Runoff Controls

SMCRA requires that disturbed areas be backfilled and graded to minimize erosion and water pollution. Eight of the 22 States have explicit requirements for erosion or runoff controls specifically for CCW placement areas.¹⁹

Table 5: Closure and Post-Closure Program Elements

Final Cover

SMCRA requires a minimum of 2 feet of soil cover for final disposal of non-coal mine waste. Six of the 22 States specifically require final cover over CCW placement areas.²⁰

Action Item: EPA has not yet identified whether the other 16 States apply the SMCRA provisions for disposal of non-coal mine waste to CCW placement projects.

Revegetation

SMCRA requires revegetation over areas used for final disposal of non-coal mine waste. One State has specific standards for revegetation of CCW placement areas.

¹⁶ One of these States requires compaction only for projects that are defined as disposal (as opposed to beneficial use) by the State.

¹⁷ One of these States requires interim cover only for projects that are defined as disposal (as opposed to beneficial use) by the State.

¹⁸ In two of these States, the requirements depend on whether a project is classified as disposal or beneficial use by the State.

¹⁹ One of these States has specific erosion control requirements only for projects that are defined as disposal (as opposed to beneficial use) by the State.

²⁰ Two of these States have specific final cover requirements only for projects that are defined as disposal (as opposed to beneficial use) by the State.

Action Item: EPA has not yet identified whether the other 21 States apply the SMCRA provisions for disposal of non-coal mine waste to CCW placement projects.

Financial Assurance/Bonding

SMCRA requires a performance bond that covers the entire permit area, with release contingent on successful completion of the reclamation plan, including revegetation. Four of the 22 States have more specific or stringent financial assurance requirements (e.g., specific financial assurance for the CCW placement project, a liability period that extends beyond completion of the reclamation plan).²¹ Four more States determine the need for more stringent financial assurance requirements on a case-by-case basis.

Post-closure Site Utilization Restrictions

This program element covers whether States place restrictions on the post-closure use of CCW placement areas.

Action Item: EPA has not yet completed identification of this program element.

Table 6: Non-coal Mine Placement Regulatory Programs

Tables 1 through 5 address program elements applicable to placement of CCW in coal mines only. Regulatory programs applicable to placement of CCW in non-coal (e.g., sand, gravel, limestone, clay) mines may differ, because non-coal mines are not regulated under SMCRA.

Action Item: EPA has not yet completed an analysis of non-coal mine placement regulatory programs. EPA, however, has identified at least five States that have programs specific to this type of placement.

²¹ One of these States has specific financial assurance requirements only for projects that are defined as disposal (as opposed to beneficial use) by the State.

1. Administrative Program Elements

State	Permitting				Public Availability of Monitoring/ Inspection Data	Public Participation in Compliance
	Address CCW in SMCRA Permit	Type of Revision to SMCRA Permit	Additional Permit, Notification or Approval	Public Participation in Permitting		
AL	?	Major	?	?	?	?
AK	?	?	?	?	?	?
AR [1]	?	?	?	?	?	?
AZ [2]	?	?	CBC	?	?	?
CO	?	?	?	?	?	?
IL	D	Major	?	?	?	?
	BU	CBC		CBC	?	?
IN	?	Major		?	?	?
KS [1]	?	?	?	?	?	?
KY	?	CBC		CBC	?	?
MD	?	minor		CBC	?	?
MO	?	Major	?	?	?	?
MT	?	CBC		CBC	?	?
NM	?	?		?	?	?
ND	?	?	?	?	?	?
OH	D	none	?		?	?
	BU	Major		?	?	?
PA	?	Major		?	?	?
TN [1][2]	?	?	?	?	?	?

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
- D Program elements specific to projects defined as disposal by the State
- BU Program elements specific to projects defined as beneficial use by the State

Key to Table Entries:

- Blank No program element in place
- ? Program element in place
- S State' program element substantively similar to that required under SMCRA
- S+ State's program element is more stringent/in addition to that required under SMCRA
- CBC Application of program element is determined on a case-by-case basis
- ? Presence of program element could not be determined by EPA
- EPA has not yet completed research on program elements in shaded columns

State		Permitting				Public Availability of Monitoring/ Inspection Data	Public Participation in Compliance
		Address CCW in SMCRA Permit	Type of Revision to SMCRA Permit	Additional Permit, Notification or Approval	Public Participation in Permitting		
TX	D		none	?	?	?	?
	BU	?	?		?	?	?
VA [1]		?	Major	CBC	?	?	?
WA [2]		?	?	?	?	?	?
WV		?	minor		CBC	?	?
WY		?	Major		?	?	?

2. Planning and Enforcement Program Elements

State		Address CCW in Reclamation Plan	Address CCW in Site Characterization /PHC Determination	Siting Restrictions	Address Acid Mine Drainage/Acid-Base Balance	Risk Assessment Focused on CCW	Enforceable Limits/ Corrective Action Requirements
AL		?	?	S		?	S
AK		?	?	S+		?	S
AR [1]		?	?	S		?	S
AZ [2]		?	?	S		?	S+
CO		?	?	S+		?	S+
IL	D	?	?	S	?	?	S+
	BU	?	?	S		?	S
IN		?	?	S+		?	S
KS [1]		?	?	S+		?	S
KY		?	?	S+		?	S+

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
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State	Address CCW in Reclamation Plan	Address CCW in Site Characterization /PHC Determination	Siting Restrictions	Address Acid Mine Drainage/Acid-Base Balance	Risk Assessment Focused on CCW	Enforceable Limits/ Corrective Action Requirements
MD	?	?	S		?	S
MO	?	?	S		?	S
MT	?	?	S		?	S
NM	?	?	S		?	S
ND	?	?	S+		?	S+
OH	D	CBC	S+		?	S+
	BU	?	S+	?	?	S
PA	?	?	S+	?	?	S+
TN [1][2]	?	?	S+		?	S
TX	D	?	S+		?	S+
	BU	?	S		?	S
VA [1]	?	?	S+		?	S
WA [2]	?	?	S+		?	S
WV	?	?	S	?	?	S
WY	?	?	S		?	S

3. Waste Characterization and Monitoring Program Elements

State	Waste Characterization			Groundwater Monitoring		Surface Water Monitoring	
	Prior to Placement	During Placement	Characteristic Limits	During Placement	Post-Closure	During Placement	Post-Closure
AL	?		?	S	S	?	?
AK				S+	S+	?	?

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
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State		Waste Characterization			Groundwater Monitoring		Surface Water Monitoring	
		Prior to Placement	During Placement	Characteristic Limits	During Placement	Post-Closure	During Placement	Post-Closure
AR [1]		?	?	?	CBC	S	?	?
AZ [2]		?			CBC	CBC	?	?
CO		?	?		CBC	CBC	?	?
IL	D	?	?		S+	CBC	?	?
	BU	?		?	S	S	?	?
IN		?	?	?	S+	S	?	?
KS [1]					CBC	S	?	?
KY		?	?	?	S+	S+	?	?
MD		?		?	S	S	?	?
MO		?		?	S+	CBC	?	?
MT		?		?	S+	S+	?	?
NM		?			S+	CBC	?	?
ND		?			S+	S+	?	?
OH	D	?	?	?	CBC	CBC	?	?
	BU	?	?	?	S+	S	?	?
PA		?	?	?	S+	S+	?	?
TN [1][2]				?	CBC	CBC	?	?
TX	D	?		?	S+	S+	?	?
	BU				S	S	?	?
VA [1]		?		?	S	S	?	?
WA [2]					S+	S	?	?
WV		?	?	?	S	S	?	?

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
- D Program elements specific to projects defined as disposal by the State
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- EPA has not yet completed research on program elements in shaded columns

State	Waste Characterization			Groundwater Monitoring		Surface Water Monitoring	
	Prior to Placement	During Placement	Characteristic Limits	During Placement	Post-Closure	During Placement	Post-Closure
WY	?			S	S	?	?

4. Design and Operational Program Elements

State	Groundwater Table Restrictions	Compaction or Other Waste Conditioning	Interim Cover	Fugitive Dust Controls	Erosion/Surface Runoff Controls
AL				S	S
AK	?			S	S
AR [1]				S	S
AZ [2]				S	S
CO	?			S	S
IL	D			S+	S+
	BU			S+	S+
IN				S+	S
KS [1]				S	S
KY	?			S+	S
MD				S	S
MO	?	?		S+	S+
MT	?			S	S+
NM				S	S+
ND		?	?	S+	S+
OH	D			S+	S+
	BU	?		S	S

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
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- EPA has not yet completed research on program elements in shaded columns

State		Groundwater Table Restrictions	Compaction or Other Waste Conditioning	Interim Cover	Fugitive Dust Controls	Erosion/Surface Runoff Controls
PA		?			S+	S+
TN [1][2]		?	?		S+	S
TX	D	?	?	?	S+	
	BU				S	S
VA [1]			?		S+	S+
WA [2]					S	S
WV			?		S+	S
WY					S	S

5. Closure and Post-Closure Program Elements

State		Final Cover	Revegetation	Financial Assurance/ Bonding	Post-closure Site Utilization Restrictions
AL		S	S	S	?
AK		S	S	S+	?
AR [1]		S	S	S	?
AZ [2]		S	S	CBC	?
CO		S	S	CBC	?
IL	D	S	S	S	?
	BU	S	S	S	?
IN		S+	S	S	?
KS [1]		S	S	CBC	?
KY		S+	S	S+	?

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
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State		Final Cover	Revegetation	Financial Assurance/ Bonding	Post-closure Site Utilization Restrictions
MD		S	S	S	?
MO		S	S	S	?
MT		S	S	S	?
NM		S+	S	S	?
ND		S+	S+	S+	?
OH	D	S+	S		?
	BU	S	S	S	?
PA		S	S	S	?
TN [1][2]		S	S	CBC	?
TX	D	S+	S	S+	?
	BU	S	S	S	?
VA [1]		S	S	S	?
WA [2]		S	S	S	?
WV		S	S	S	?
WY		S	S	S	?

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
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- ? Presence of program element could not be determined by EPA
- EPA has not yet completed research on program elements in shaded columns

6. Non-coal Mine Placement Regulatory Programs

State		Do State Regulations Address Non-coal Mine Placement of CCW?
AL		?
AK		?
AR [1]		?
AZ [2]		?
CO		?
IL	D	?
	BU	?
IN		?
KS [1]		?
KY		?
MD		?
MO		?
MT		?
NM		?
ND		?
OH	D	?
	BU	?
PA		?
TN [1][2]		?
TX	D	?
	BU	?

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
- D Program elements specific to projects defined as disposal by the State
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- ? Presence of program element could not be determined by EPA
- EPA has not yet completed research on program elements in shaded columns

State	Do State Regulations Address Non-coal Mine Placement of CCW?
VA [1]	?
WA [2]	?
WV	?
WY	?

DRAFT DRAFT

Notes for States Column:

- [1] Coal mine placement is not currently occurring in this State, information presented is based on the program elements that would likely apply were placement to occur.
- [2] Mining program administered by Federal OSM; additional program elements may apply under State solid waste program.
- D Program elements specific to projects defined as disposal by the State
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- CBC Application of program element is determined on a case-by-case basis
- ? Presence of program element could not be determined by EPA

EPA has not yet completed research on program elements in shaded columns