ILLINOIS
DEPARTMENT OF
NATURAL RESOURCES
Office of Mines and Minerals
524 South Second Street, Springfield 62701-1787 Jim Edgar, Governor ● Brent Manning, Director

Land Reclamation Division Memorandum No. 95-8

TO: All Coal Operators

DATE: October 31, 1995

FROM: Scott Schmitz, Supervisor
Land Reclamation Division

RE: Beneficial use of Coal Combustion By-Product and Storage or Disposal of Coal Combustion Waste at Permitted Facilities

The Environmental Protection Act (Act) was recently amended to define coal combustion by-product (CCB). Additional amendments to the Act establish the conditions for approval of the beneficial use of CCB. This memorandum establishes the Department's procedures for approving the beneficial use of CCB and the Department's procedures concerning the disposal of coal combustion waste (CCW). The procedures addressed in this memorandum are in addition to those found in Memorandum 92-11 - Permitting Guidelines for the Disposal of Coal Combustion Waste. Memorandum 92-11 is attached for your convenience.

Approval of the use of Coal Combustion By-Product

Section 3.94 of the Act defines CCB as coal combustion waste used beneficially. Examples of CCB used beneficially include but are not limited to the following purposes: mine subsidence control, mine fire control, mine sealing, a substitute for agricultural lime, fill material, road base and mine reclamation. The use of CCB may be applied for through a permit application, significant permit revision, insignificant permit revision or incidental boundary revision depending on the situation and magnitude of the changes proposed.

A request for the use of the CCB must include the following:

1. A description of the CCB including the type and its source and an estimate of the quantity to be used.

2. The applicant must demonstrate that the coal combustion by-product is being used beneficially. A detailed description of the application, handling and placement operations of the CCB, including the operational procedures to be followed in the field to place the material in a controlled manner shall be provided. If the CCB is

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to be incorporated with other materials, the proposal should address the mixing, handling and/or sequence for placement of the material.

3. A discussion demonstrating that the CCB will have no adverse impacts to the environment. To evaluate the chemical characteristics of the CCB or mixtures of CCB proposed, the following chemical analyses shall be conducted. The CCB shall not exceed Class I Groundwater Standards for metals when utilizing test method ASTM D3987-85. The test shall be conducted for the following:

Arsenic	Chromium	Lead	Selenium
Barium	Cobalt	Manganese	Silver
Boron	Copper	Mercury	Phenol
Cadmium	Iron	Nickel	Zinc
Antimony	Beryllium	Thallium	

All of these tests must be run on a representative sample of the CCB mixture based on the disposal plan proposed. Details of the representative sampling procedure shall be addressed.

4. Appropriate maps shall be provided showing the area where the beneficial use of the CCB is to occur and enough of the surrounding area to evaluate site conditions.

5. The operational procedures shall incorporate necessary erosion control measures as well as dust control measures to minimize wind erosion of CCB during transport, storage and handling activities.

6. The applicant must provide a reclamation plan for the CCB site. Any modifications to soil grading, covering and/or amendment, seeding and mulching activities related specifically to the area shall be described.

The CCB shall not be mixed with hazardous waste prior to use, pursuant to Section 3.94(10)(A) of the Act. Pursuant to Section 3.94(10)(C) of the Act, the Department will not require a permit revision for pavement base, parking lot base or building base projects utilizing less than 10,000 tons of CCB, flowable fill/grout projects utilizing less than 1,000 cubic yards of CCB or other applications utilizing less than 100 tons of CCB.

Requirements Concerning the Disposal of Coal Combustion Waste

Section 21(r)(3)(ii) of the Act establishes the four provisions which must be achieved in order to receive approval to store or dispose of coal combustion waste (CCW). These provisions are addressed in Memorandum 92-11 and shall continue to apply.

In addition to the requirements of Memorandum 92-11, the Department hereby establishes the following procedures concerning the disposal of CCW.

- The proposed disposal site must be adjacent to the mine site. Also, CCW disposal must be associated with coal sales of the applicant. This may be considered on a company wide basis rather than a mine specific basis, but if the CCW source has not purchased coal from the coal operator, the operator will not be allowed to dispose of that source's CCW.

- The total amount of CCW a coal company is allowed to receive shall not exceed 35% of the company wide coal sales tabulated on an annual basis, but in no case shall the CCW received from a given CCW source exceed 35% of the coal sold to that source. The 35% limit shall apply unless the operator supplies appropriate information justifying a higher percentage.

- Due to the increased magnitude of CCW disposal, and to assure proper monitoring of disposal operations, the Department requires that all operators disposing of CCW provide the following information:

1. In addition to the testing required by the third provision of Memorandum 92-11, the additional chemical constituents added by an August 11, 1994 amendment to the I-EPA's Groundwater Quality Standards shall also be included. These are antimony, beryllium and thallium which shall be tested in accordance with the Toxicity Characteristics Leaching Procedures (TCLP). This information shall be submitted on a quarterly basis unless otherwise approved by the Department.

2. The quantity of CCW from each source as well as the total quantity of CCW received at the disposal site shall be reported on a quarterly basis along with any other required monitoring as addressed in Memorandum 92-11, this memorandum and any specific permit conditions. At the same time the quantity of coal sales to each CCW source for that quarter shall be reported.

3. A representative weighted composite of all CCW disposed during a given quarter shall be reported on a quarterly basis. Such analyses shall include all constituents identified in Memorandum 92-11, plus antimony, beryllium and thallium.

The monitoring requirements and percentage limitations of this memorandum shall apply to previously approved coal combustion waste disposal operations. All quarterly monitoring shall be based on a calendar quarter with reports due on the following schedule - May 1, August 1, November 1 and February 1.

Enc.

ILLINOIS DEPARTMENT OF MINES AND MINERALS

Ronald E. Morse
Director

PROTECTING OUR RESOURCES

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Land Reclamation Division Memorandum No. 92-11

TO: All Coal Staff
Land Reclamation Division

FROM: Fred K. Bowman, Supervisor FB
Land Reclamation Division

DATE: November 4, 1992

RE: Attached Memorandum 92-11 IDMM-LRD/IEPA Permitting Guidelines for the Disposal of Coal Combustion Waste

Attached are updated guidelines for the permitting and disposal of coal combustion wastes at coal mine sites. This memorandum will replace IDMM/LRD Memorandum 90-5.

The guidelines have been co-written with the Illinois Environmental Protection Agency; an application following these guidelines will satisfy both agencies although some requirements are not necessarily in IDMM regulations.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
and
ILLINOIS DEPARTMENT OF MINES AND MINERALS (92-11)

October 27, 1992

Re: Storage or Disposal of Coal Combustion Waste at Permitted Facilities

Dear Sirs:

Attached please find updated guidelines for the preparation of permit applications for the disposal of coal combustion wastes at coal mine facilities. In an effort to make the permitting process more efficient, site and material characterization requirements have been agreed on by both the Illinois Environmental Protection Agency (IEPA) and the Illinois Department of Mines and Minerals (IDMM) and are presented herein.

If you have any questions, do not hesitate to contact the Mine Pollution Control Program (MPCP) of IEPA at 217/785-0748 or the Land Reclamation Division of IDMM at 217/782-4970.

Sincerely,

James B. Park
Chief
Bureau of Water, IEPA

Ronald E. Morse
Director, IDMM

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
and
ILLINOIS DEPARTMENT OF MINES AND MINERALS

Storage or Disposal of Coal Combustion Waste
at Permitted Facilities

November, 1992

This correspondence is intended to update and summarize the Illinois Environmental Protection Agency (IEPA or Agency) and the Illinois Department of Mines and Minerals (IDMM or Department) permit requirements for the disposal of coal combustion waste(s) as generally outlined in Section 21(r) of the Environmental Protection Act (Act). More specifically, attention is given to material characterization and site studies necessary to allow for disposal of such wastes at a given coal mine facility operation under NPDES and Subtitle D permits issued by IEPA and the appropriate permit(s) issued by the IDMM pursuant to the Surface Coal Mining Land Conservation and Reclamation Act and the Permanent Program rules and regulations.

Section 3.76 of the Act defines "coal combustion waste" as, "any of the following materials generated as a result of the combustion of coal or of coal in combination with no more than 20 percent of tire derived fuel and wood by weight of the materials combusted: (1) fly ash; (2) bottom ash; (3) flue gas desulfurization byproducts."

Section 21(r) of the Act then outlines the circumstances under which IEPA will, "allow the storage or disposal of coal combustion wastes." Sections 21(r)(1) and 21(r)(2) are not regulated directly by the Mine Pollution Control Program (MPCP) of IEPA or IDMM, but are noted for completeness.

Section 21(r)(1) of the Act states that coal combustion waste may be stored or disposed of at a permitted/approved site or facility in accordance with the Subtitle G regulations administered by the Bureau of Land within IEPA.

Section 21(r)(2) of the Act states that coal combustion waste may be stored or disposed of at an abandoned coal mine site that is a reclamation project sponsored by the Abandoned Mined Lands Reclamation Council (AMLRC) in accordance with the Abandoned Mined Lands and Water Reclamation Act. Such disposal activities are coordinated between the AMLRC and the IEPA through the working relationship between AMLRC staff and the MPCP as the Director's designated representative serving on the Council.

Section 21(r)(3) of the Act is the focus of this guidance regarding disposal of coal combustion waste at an active coal mine facility subject to operating permits required by IEPA and IDMM. An owner or operator of a permitted facility who agrees to accept coal combustion waste for storage or disposal can gain approval for such

activity by incorporating plans in the initial facility application or by making a separate demonstration anytime thereafter as detailed below. Separate approval from IEPA and IDMM is needed to implement each coal combustion waste storage or disposal plan.

Section 21(r)(3)(i) of the Act allows for storage or disposal of coal combustion waste at an active coal mine facility if this activity is provided for in the approved refuse disposal plan under the existing National Pollutant Discharge Elimination System (NPDES) and/or Subtitle D permits. General procedures for the revision of a refuse disposal plan (to include coal combustion waste disposal activities) are contained in 35 IAC Section 405.106 of the Illinois Pollution Control Board's (Board's) regulations.

Alternatively, Section 21(r)(3)(ii) of the Act allows for storage or disposal of coal combustion waste at an active coal mine facility if the owner or operator demonstrates to the satisfaction of IEPA and IDMM that <u>all</u> of the following four provisions can be achieved; and further agrees to operate the facility in accordance with the separate approvals given by IEPA and IDMM.

It should be noted that IEPA and IDMM may be applied to jointly through IDMM permit applications and significant permit revisions which undergo public notice procedures, as IEPA will receive those proposals directly. However, IEPA must be applied to separately in the case of insignificant permit revisions and incidental boundary revisions which are submitted to IDMM.

The first provision of the proposal requires demonstration that, "the disposal area will be covered in a manner that will support continuous vegetation." In most cases the approved reclamation plan in the IDMM permit will be adequate for this purpose. However, any modifications to soil grading or covering and/or amendment, seeding and mulching activities related specifically to a disposal area should be detailed to support this continuous vegetation requirement. This includes special attention given to operation and maintenance activities for a disposal area. Modifications of the approved reclamation plan will require subsequent approval by IEPA and IDMM.

The second provision of the proposal requires demonstration that, "the facility will be adequately protected from wind and water erosion." The disposal plan proposal should therefore include the following elements for a selected site:

- IEPA requires an accurate topographic map showing the proposed limits of the disposal area with preliminary design details, and enough of the surrounding area of the facility to evaluate potential wind and surface water effects.

- A detailed description of storage (if applicable), handling and waste placement operations, including planned operation

and maintenance (O & M) activities for the disposal area. This discussion should include details on waste composition for disposal by outlining if a particular coal combustion waste will be disposed of separately in a monofill or in combination with other coal combustion wastes and/or mine refuse. Similarly, details should be provided on the volume of wastes estimated to be disposed and the operational procedures to be followed in the field to place and compact that material in a controlled manner. If co-disposal is planned, the proposal should address the mixing, handling and/or sequence for placement of the various wastes involved.

- IEPA requires operational procedures to minimize wind erosion of coal combustion waste during transport, storage and handling activities as well as after initial placement in the disposal area. The goal of this program should be no visible emissions of coal combustion waste resulting from the disposal operation.

- IEPA requires "good mining practice" erosion control measures such as diversions to minimize surface water from coming into contact with coal combustion waste in the storage and/or disposal area. This plan should also include adequate protection against erosion of waste materials from direct precipitation. Surface water runoff from the storage and/or disposal area may be addressed under provision four.

The third provision of the proposal requires demonstration that, "the pH will be maintained so as to prevent excessive leaching of metal ions." To evaluate the potential for leaching of inorganic contaminants from the coal combustion waste or mixtures proposed for disposal, the following chemical analyses shall be conducted using laboratory methods currently recognized in the regulatory program. All of these tests must be run on a <u>representative</u> sample of the waste mixture based on the disposal plan proposed. Details on the formulation of this representative sample for testing purposes should be addressed.

Appropriate laboratory analyses on the slurry paste shall include:

pH
Alkalinity ($CaCo_3$ Equivalent)
Acidity ($CaCo_3$ Equivalent)
TDS

The Toxicity Characteristics Leaching Procedure (TCLP) shall be conducted for the following:

Arsenic	Chromium	Lead	Selenium
Barium	Cobalt	Manganese	Silver
Boron	Copper	Mercury	Phenol
Cadmium	Iron	Nickel	Zinc

An appropriate leaching procedure shall be conducted for the following:

Chloride	Cyanide	Fluoride	Sulfate

Appropriate leaching procedures for sodium, molybdenum and/or other constituents may be specified by IDMM if cover variances are sought or coal combustion waste is proposed as a soil amendment.

The fourth and last provision of the proposal requires demonstration that, "adequate containment or other measures will be provided to protect surface water and groundwater from contamination at levels prohibited by this Act, the Illinois Groundwater Protection Act, or regulations adopted pursuant thereto."

Surface water controls were initially discussed in provision two of these proposal requirements with the focus on controlled "clean" water diversion and discharge. Discussion in this section of the proposal should focus on the collection, conveyance, monitoring and discharge of surface water runoff contacting coal combustion waste or mixtures placed in the disposal area. The proposal may include pretreatment and/or treatment plans prior to discharge from the facility, depending on the quality of the waste or mixture being disposed.

Discussion of the hydrogeology of the disposal area should utilize existing local information and facility data where possible and include boring logs for geological purposes and/or for monitoring/production well installation in the vicinity of the disposal area. A <u>summary</u> of all groundwater monitoring data (to include data required by IDMM) for wells in the vicinity of the disposal area should be submitted and incorporated in the discussion of existing conditions. It should be stressed that the completeness of this data package is critical to timely evaluation of the proposed area for disposal activities. This groundwater data is being requested in this "stand-alone" proposal because IEPA may

not be receiving routine compliance information unless it has been specifically requested for a given facility. Finally, the details of all engineering containment or other control measures being proposed for a given situation should be presented in conceptual form, with supporting justification of the protectiveness they provide.

Approval by IEPA and/or IDMM for each specific demonstration proposal may be conditional, as determined by the Agency and/or the Department after discussions with the owner or operator. For instance, IEPA/IDMM may require additional groundwater monitoring parameters to be added to those in the approved monitoring plan based on the potential for leaching as determined by waste mixture testing. IEPA/IDMM will initially require quarterly sampling, prescribed analysis and reporting on <u>each</u> coal combustion waste source approved for disposal, to establish baseline waste characteristics and source variability. If a coal combustion waste is approved to be mixed with other wastes, then the representative mixture should also be analyzed quarterly. Once baseline waste characteristics are consistently established, the owner or operator may approach IEPA/IDMM for approval for modifications to their monitoring plan. Finally, any changes in the coal combustion waste source material or mixture (either by a waste supplier or by the mine facility), from that initially approved by IEPA/IDMM, requires notification and submittal of chemical analyses of the alternative waste source material or mixture and approval by IEPA/IDMM <u>prior</u> to any changes in actual disposal operations.

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524 South Second Street, Springfield 62701-1787 Jim Edgar, Governor ● Brent Manning, Director

Land Reclamation Division Memorandum No. 95-9

TO: All Coal Operators

DATE: November 20, 1995

FROM: Scott Schmitz, Supervisor
Land Reclamation Division

RE: Beneficial Use of Coal Combustion By-Product and Storage or Disposal of Coal Combustion Waste at Permitted Facilities - Correction

This memorandum is being issued in order to correct some language found in LRD Memorandum No. 95-8, issued on October 31, 1995 concerning the storage or disposal of coal combustion by-product and coal combustion waste.

Under the second bullet point on page 3 of the memo, it states that "The total amount of CCW a coal company is allowed to receive shall not exceed 35% of the company wide coal sales tabulated on an annual basis, but in no case shall the CCW received from a given CCW source exceed 35% of the coal sold to that source (emphasis added). The 35% limit shall apply unless the operator supplies appropriate information justifying a higher percentage."

It is not the Department's intent to set a 35% limit on each individual CCW source, but rather it is intended that the 35% limit apply to total annual company coal sales. As an example, if a company produces one million tons per year and sells the coal to two different coal customers, that company could take back as much as 350,000 tons of CCW in any combination from those customers. The Department will evaluate the total annual coal sales and compare this to the total amount of CCW brought back to the disposal site(s). As long as the total amount of CCW disposed does not exceed 35% of a company's total annual coal production, or a higher limit if approved by the Department, that company shall be deemed to be in compliance with the policy memo. As a point of clarification, total annual company sales is limited to sales from Illinois coal only. Production in other states shall not be counted.

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The last sentence of Point No. 2 under the third bullet point on page 3 of the memo, shall be deleted. While the quantity of CCW from each source shall be reported on a quarterly basis, the reporting of the amount of coal sales to each CCW source will not be required. Reporting of the total company wide coal sales for the quarter shall be required.

The additional monitoring requirements and percentage limitations imposed by Memorandum 95-8 as modified by this memorandum shall be effective January 1, 1996.

In order to simplify reporting and interpretation of monitoring results for those operators with disposal sites at more than one mine, it is recommended that the required monitoring information for all mines be submitted under a single cover letter.

If you have any questions concerning this policy, please do not hesitate to contact Don Wheeler of this office.