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COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
BUREAU OF SURFACE MINING RECLAMATION AND ENFORCEMENT
GENE BRANDENBURG
COMMISSIONER
FRANKFORT, KENTUCKY 40601

RECLAMATION ADVISORY MEMORANDUM NO. 22

TO: BSMRE Division Directors and Regional Engineers
Coal Operator Associations
Coal Operators and Company Engineers
Consulting Engineers

FROM: Gene Brandenburg, Commissioner

SUBJECT: Approval of Permanent Water Impoundments

DATE: May 8, 1980

I. GENERAL

Sedimentation ponds and other water impoundments on mining operations are normally temporary for the duration of mining and reclamation operations, and are required to be removed after reclamation is completed and the purposes of the impoundments have been fulfilled (see KRS 350.420(4) and 405 KAR 1:200, Section 1(5) or 405 KAR 3:170, Section 1(5)). However, the department may authorize the retention of certain impoundments as permanent impoundments if the requirements of KRS 350.455 and 405 KAR 1:220 or 405 KAR 3:190 are fully met. (References to 405 KAR Chapter 3, deep mining, which correspond to provisions of 405 KAR Chapter 1, strip mining, are hereafter omitted for simplicity in this memorandum although they are applicable and should be inferred.)

II. APPROVAL PROCEDURE

Impoundments which are proposed to be retained as permanent impoundments should be included in the initial permit application and should be designed as permanent structures from the outset. However, the department may approve as permanent structures certain impoundments not initially proposed as permanent impoundments, provided the permit application is appropriately revised and provided the impoundments meet all requirements which would have been applicable had the proposed permanent impoundments been included in the initial application.

Approval of impoundments will be made in two (2) separate stages. The first stage will be a tentative approval which will be given on the permit form after a satisfactory review has been made of the design and plans submitted to justify the impoundment and will be made by the Director of the Division of Permits. This tentative approval will authorize the initial construction of the impoundment. The second stage will be final approval by the Director of the Division of Permits as indicated by his approval of the final bond release. The Director's approval will be based upon the preparation and submission of the request for bond release with recommendation for the bond release made by the inspector, the Bond Release Specialist, and the Regional Engineer. A notation shall be made on the face of the bond release request that the impoundment has been inspected and meets the applicable requirements for the particular type of impoundment.

III. IMPOUNDMENT TYPES

There are three (3) basic types of impoundments which may be authorized as permanent impoundments under current laws and regulations:

- (1) impoundments created by modifying the final pit in the open pit process;
- (2) incised, or "dugout" impoundments; and
- (3) embankment or dam impoundments.

Types 2 and 3 are normally impoundments constructed for sedimentation control, other water treatment, or fresh water supply, which are desired to be left after mining and reclamation in order to support approved postmining land uses.

IV. ADVERTISEMENT OF LAND USE CHANGE

Impoundments of water are categorized by 405 KAR 1:070, Section 3(6) as a specific postmining land use and as such must be advertised as an alternative postmining land use as required by 405 KAR 1:070, Section 4(10). However, in some instances a small impoundment does not in itself constitute a separate and independent land use but rather is clearly an integral and subservient minor part of an approved proposed postmining land use. In such cases it will not be necessary to advertise a land use change for the small impoundment itself.

Generally, if a small impoundment is proposed to be retained as a permanent part of an approved postmining land use, and the impoundment is within the size limitations listed below, advertisement of a postmining land use change for the impoundment itself will not be required. Further, when two (2) or more impoundments are proposed to be retained, and the cumulative surface area and volume are within the criteria listed below, advertisement for the impoundments alone will not be required. However, if an impoundment was not approved as a permanent impoundment in the initial permit, the permit must be revised to include the impoundment as a permanent structure.

Maximum Surface Area and Volume

- (1) West Kentucky.
 - (a) Surface area at emergency spillway..... 1.0 acre
 - (b) Volume at emergency spillway..... 6.0 acre-feet

- (2) East Kentucky.
 - (a) Surface area at emergency spillway..... 0.5 acre
 - (b) Volume at emergency spillway..... 3.0 acre-feet

Proposed permanent impoundments larger than the size criteria listed above will be deemed to constitute a separate alternative postmining land use category, even if such impoundments are intended to support other approved proposed postmining land uses. For example, a proposed permanent impoundment to be used for watering livestock, which exceeds the size criteria above, must be advertised as an alternative postmining land use in the "impoundments of water" category (405 KAR 1:070, Section 3(6)), even if the impoundment is intended to support a proposed postmining land use in the "hayland or pasture" category on the permit area.

V. HAZARDOUS IMPOUNDMENTS

No impoundment which has a structure hazard classification of (B) - moderate hazard, or (C) - high hazard, will be approved for retention as a permanent impoundment unless the impoundment was constructed or reconstructed in accordance with a permit issued by the department (Division of Water Resources) under the provisions of KRS 151.250 and regulations promulgated pursuant thereto, as required by 405 KAR 1:200, Section 1(6) and (7) or by 405 KAR 1:020, Section 5(2)(c) and (d).

VI. MINIMUM CRITERIA FOR PERMANENT IMPOUNDMENTS

KRS 350.455 and 405 KAR 1:220 require that certain minimum criteria be met by any water impoundments proposed to be left after mining and reclamation as permanent structures:

- (1) The size of the impoundment must be adequate for its intended purposes;
- (2) The dam or embankment of the impoundment must be designed and constructed to achieve stability with an adequate margin of safety compatible with that of structures constructed under PL 83-566 (16 USC 1006);
- (3) The quality of impounded water must be suitable on a permanent basis for its intended uses;
- (4) Discharges from the impoundment must not degrade the water quality of the receiving stream below water quality standards established pursuant to applicable federal and state law;
- (5) The level of water in the impoundment must be reasonably stable;
- (6) Final grading must provide adequate safety and access for proposed water users; and
- (7) Such water impoundments must not cause diminution of the quality or quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.

All proposals for permanent water impoundments must specifically address the above listed general requirements and must clearly demonstrate that these requirements will be met.

VII. ADDITIONAL REQUIREMENTS

A. Requirements applicable to all impoundment types. The applicant or permittee shall submit the following information and documentation:

- (1) A written statement of consent from the landowner, if different from the applicant or permittee, authorizing the applicant or permittee to leave a permanent impoundment on the property and acknowledging that proper maintenance of the impoundment will be the responsibility of the landowner;
- (2) A statement of the specific intended purposes of the proposed permanent impoundment and a demonstration of how the impoundment will be adequate to fulfill those purposes. The specific postmining land use which the impoundment is intended to support shall be stated.
- (3) Engineering plans which shall include:
 - a) The structure hazard classification;
 - b) "As-built" plans, certified by the responsible registered professional engineer, if construction has been completed;
 - c) A curve or table showing the elevation-area-volume relationship of the impoundment;
 - d) A plan view drawing, including contour lines, showing the maximum water surface area and extending at least 100 feet horizontally beyond the maximum perimeter of the impoundment and embankment, if any;
 - e) Detailed drawings of any principal and emergency spillways.

B. Special requirements for open pit impoundments.

- (1) Adequate sources of water shall be available to maintain the water level of the impoundment at a minimum average depth of six (6) feet.
- (2) Engineering plans shall demonstrate:
 - a) The method of backfilling and grading to eliminate the highwall;
 - b) The method of covering any exposed coal seams with at least four (4) feet of non-acid, non-toxic earth materials.

C. Special requirements for incised or "dugout" impoundments.

- (1) Adequate sources of water shall be available to maintain the water level of the impoundment at a minimum average depth of six (6) feet;

D. Special requirements for dam or embankment impoundments.

- (1) Adequate sources of water shall be available to maintain the water level of the impoundment at a minimum depth of six (6) feet at the deepest point;
- (2) Engineering plans shall include:
 - (a) A cross-section on original ground along the centerline of the embankment; and a profile on original ground along the natural drainway extending from the downstream toe of the embankment to the upstream end of the impoundment at the elevation of the top of the embankment;
 - (b) Cross-sections of the embankment showing all pertinent elevations;

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- (c) Construction specifications for the embankment, including a plan for vegetation or other slope protection;
 - (d) A stability analysis for the embankment which demonstrates a long-term safety factor of 1.5 or higher.
- (3) For dam or embankment impoundments having a structure hazard classification of (B) - moderate hazard, or (C) - high hazard, the statement of landowner consent and maintenance responsibility shall also include a demonstration that the landowner is financially capable of performing any necessary maintenance.

cc: Forrest Roark
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