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# State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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January 29, 1992

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Dear Mr. 2~:

Re: Interpretation of the Recent Changes to the Spillway Requirements of the R645(R614)-301-742.220 Sedimentation Ponds, 4~, 5~, 6~, Folder #4, 7~ County, Utah

Background

The August 23,1991 R614 (now R645) rule changes incorporated revisions to the requirements for sedimentation pond and impoundment spillway criteria. This letter sets forth the rule requirements (as of August 23, 1991) for Rule R645-301-742.220 (Sedimentation ponds) and the spillway exemption under R645-301-743.131 through R645-301-743.132 (Impoundments) as well as a discussion of their effect on the Coal Regulatory Program. All changes are **bolded.** The shaded portions of the rule at 742.224 has not been approved by OSM.

Current Division Orders regarding ponds or impoundments which have only one spillway are now considered modified to allow a demonstration of compliance with the revised rules of August 23, 1991. The operator may still elect to demonstrate compliance with R645-301-742.223. As a result of the rule revisions, modification of currently constructed ponds may not be required.

Current Rules as of August 23, 1991

742.220. Sedimentation Ponds

742.221. Sedimentation ponds, when used, will:

742.221.1. Be used individually or in series;

742.221.2. Be located as near as possible to the disturbed area and out of perennial streams unless approved by the Division; and

742.221.3. Be designed, constructed, and maintained to:

742.221.31. Provide adequate sediment storage volume;

742.221.32. Provide adequate detention time to allow the effluent from the ponds to meet Utah and federal effluent limitations;

742.221.33. Contain or treat the 10-year/24-hour precipitation event ("design event") unless a lesser design event is approved by the Division based on terrain, climate, or other site-specific conditions and on a demonstration by the operator that the effluent limitations of R645-301-751 will be met;

742.221.34. Provide a nonclogging dewatering device adequate to maintain the detention time required under R645-301-742.221.32.

742.221.35. Minimize, to the extent possible, short circuiting;

742.221.36. Provide periodic sediment removal sufficient to maintain adequate volume for the design event;

742.221.37. Ensure against excessive settlement;

742.221.38. Be free of sod, large roots, frozen soil, and acid- or toxic-forming coal-processing waste; and

742.221.39. Be compacted properly.

742.222. Sedimentation ponds meeting the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a) will comply with all the requirements of that section, and will have **a single spillway or** principal and emergency spillways that in combination will safely pass a 100-year/6-hour precipitation event **or greater event as demonstrated to be necessary by the Division.**

742.223. Sedimentation ponds not meeting the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a) will provide a combination of principal and emergency spillways that will safely discharge a 25-year/6-hour precipitation event **or greater event as demonstrated to be needed by the Division.** Such ponds may use a single open channel spillway if the spillway is:

742.223.1. **Of nonerodible construction and designed to carry sustained flows; or**

742.223.2. **Earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected.**

**742.224. In lieu of meeting the requirements of R645-301-742.223.1 and 742.223.2 the Division may approve a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer or qualified registered professional land surveyor in accordance with R645-301-512.100 that the sedimentation pond will safely control the design precipitation event. The water will be removed from the pond in accordance with current, prudent, engineering practices and any sediment pond so used will not be located where failure would be expected to cause loss of life or serious property damage.**

**742.225. An exception to the sediment pond location guidance in R645-301-742.224 may be allowed:**

**742.225.1. In the case of a sedimentation pond meeting the size or other criteria of 30 CFR 77.216(a), if the pond is designed to control the precipitation of the probable maximum precipitation of a 6-hour event or greater event if specified by the Division; or (30 CFR 816.46(c)(2)(ii)(A))**

**742.225.2.** **In the case of a sedimentation pond not meeting the size or other criteria of 30 CFR 77.216(a), if the pond is designed to control the precipitation of a 100-year/6-hour event or greater event if demonstrated to be needed by the Division.**

743. Impoundments

743.131 The Division may approve a single-open channel spillway that is:

743.131.1. Of nonerodible construction and designed to carry sustained flows; or

743.131.2. Earth-or grass lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.

743.132. In lieu of meeting the requirements of 743.131 the Division may approve an impoundment which meets the requirements of the sediment pond criteria of R645-301-742.224 and 742.225.

Discussion of the Criteria

The following criteria must be met before an exemption, pursuant to Rule R645-301-742.224, can be granted to the dual spillway requirements of Rule R645-301-742.223. It must be demonstrated that:

1) A pond can rely primarily on storage to control runoff from the Design Precipitation Event;

The operator must provide:

a) A demonstration by the operator that the sedimentation pond will safely control the design precipitation event.

b) A certification by a qualified registered professional engineer that the sedimentation pond will safely control the design precipitation event.

2) The water can be safely removed from the pond in accordance with current, prudent, engineering practices;

The operator must provide:

a) Designs for a nonclogging dewatering device and an operational dewatering plan.

3) Criteria for sediment pond location are met.

a) If the sediment pond is located where failure will <u>not cause</u> loss of life or serious property damage;

The operator must provide:

i) A demonstration that failure of the pond will not cause loss of life or serious property damage (e.g., dam breech or flood wave analysis); and

ii) A demonstration the pond is designed to safely control the design event (usually the 25-year/6-hour precipitation event).

b) If the sediment pond is located where failure <u>could be expected to cause</u> loss of life or serious property damage;

The operator must provide:

i) For ponds meeting the criteria of 30 CFR 77.216(a) (MSHA-sized pond), designs demonstrating the pond will control the precipitation of the probable maximum precipitation (PMP) of a 6-hour event or greater event if specified by the Division.

ii) For ponds not meeting the MSHA criteria, designs demonstrating the pond will control the precipitation of a 100-year/6-hour event or greater event if demonstrated to be needed by the Division.

In summary, for the most common ponds in Utah (not meeting the MSHA criteria), the demonstration of compliance with Rule 742.224 can be realitively straight forward. By simply assuming failure could cause loss of life or serious property damage (worst case scenario) and providing designs demonstrating control of the 100-year/6-hour event, the analysis that the location will not be a hazard can be eliminated (criteria (3)(a)(i) above). Often, the runoff expected from a 100-year/6-hour event will be less than or very close to the runoff volume from a 10-year/24-hour event. As most ponds in the State are now designed to contain the 10-year/24-hour event, it is suggested that engineers first check the pond storage requirements for the 100-year/6-hour event before proceeding with the demonstration that pond failure will not cause loss of life or serious property damage.

Sincerely,

LPB

Lowell P. Braxton
Associate Director, Mining

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