0974

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Utah Division of Oil, Gas and Mining
Department of Natural Resources
3 Triad Center, 355 West North Temple
Suite 350
Salt Lake City, Utah 84180-1203

Telephone (801) 538-5340
FAX (801) 359-3940

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FROM: Pam Grubaugh-Littig

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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

July 16, 1992

Mr. Joe Fielder, General Manager
Sunnyside Coal Company
P.O. Box 99
Sunnyside, Utah 84539

Dear Mr. Fielder:

Re: Impoundment Review, Sunnyside Coal Company, Sunnyside Mine, ACT/007/007, Folder #2, Carbon County, Utah

Enclosed please find a memo from Hugh Klein that outlines the requirements to complete the impoundment review relative to Division Order ACT/007/007-DO-91B. Please submit this requisite information by July 20, 1992.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

pgl
Enclosure

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Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

15 July 1992

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Hugh Klein, Geologist/Hydrologist

RE: **Review Of Sunnyside Impoundments, Sunnyside Coal Company, Sunnyside Mine, ACT/007/007, Folder 3, Carbon County, Utah**

SUMMARY

At the outset of any sediment pond review, it is important to remember that any sediment pond is a siltation structure and that "**any** siltation structure which impounds water will be designed, constructed and maintained in accordance with...and R645-301-743." Impoundment regulations are found under R645-301-743.

Unless a lesser event is approved by the Division, **all** sediment ponds must "contain or treat the 10-year 24-hour precipitation event" (see R645-301-742.221.33). To contain the event means that all runoff is stored in the pond. There is no outflow, and the volume is subsequently removed in accordance with current, prudent engineering practice. Treating the runoff is less straightforward. Many options are available for treatment. This includes, but is not limited to, using ponds in series, decant devices and allowing settling times. In its present form, this regulation allows for many different methods of treatment. Each treatment must be considered on a site specific basis. No definitive criteria list exists for treatments. Final approval of a pond's ability to treat runoff is dependent on demonstration by design that the structure will meet all applicable performance standards.

R645-301-742.223 states that non-MSHA ponds "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..." Many operators calculate the peak runoff for this event and size spillways to pass that peak flow. Another way of designing the spillways is to calculate the peak flow entering the pond, route it through the pond to the spillways and use the attenuated flow for sizing

spillways. Both methods are acceptable. Sub-parts 1 and 2 of R645-301-742.223 state that these "ponds may use a single open channel spillway if the spillway is of nonerodible construction and designed to carry sustained flows; or earth-or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected." This aspect of sediment pond requirements is fairly direct.

MSHA ponds must meet the same spillway criteria for design, but use the 100-year 24-hour event for design. The Utah rule R645-301-742.222 does not clearly spell out these requirements, but nonetheless, they exist. The deficiency in this rule's wording has been pointed out to the appropriate program staff (please see this author's 2 July 1992 memorandum to Lowell Braxton, Ron Daniels, Joe Helfrich and Pam Grubaugh-Littig for more information).

"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." This verbiage is found within R645-301-742.224 and is critical for a number of reasons. In its present form it does not appear as though this rule can be applied to MSHA ponds. Upon consulting the 30 CFR's, one finds that it can be applied to MSHA ponds. Thus R645-301-742.224 is also unclear about certain MSHA criteria even though they apply (note: a separate memorandum will be put out on this matter). Next, it should be stated that this rule is not a spillway exemption, but rather a different way of ensuring a pond can handle the given storm event. Finally, the phrase "relies primarily on storage to control the design precipitation event" must be looked at. To this author, it means that the runoff is primarily stored in the pond. Primarily means the dominant or major means by which the runoff is controlled. This is **not** the same as saying solely or entirely. The point being that this rule allows for discharge and storage as long as storage is greater than 50% of the runoff that has flowed to the structure. It is also acceptable to store the entire storm, however anything less than 50% storage is not acceptable for a pond which does not conform to the spillway design criteria of R645-301-742.223.1 and 742.223.2.

R645-301-742.224 goes on to say, "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." Reviewers have interpreted this as sediment pond location guidance. If a pond is not located, "where failure would be expected to cause loss of life or serious property damage," then the design event is the 25-year 6-hour event. However, if the pond is located where failure would be expected to cause loss of life or serious property damage, then the structure may only be approved by complying with the exception to the sediment pond location guidance in R645-301-742.225. Sub part 2 of R645-301-742.225 states that an exception to the location guidance may be allowed, "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." What this means is that a pond with a single spillway not conforming to the spillway design criteria of R645-301-742.223.1 and 742.223.2 and able to rely primarily on storage to control the runoff from the design precipitation event may be approved even if it is located where failure would be expected to cause loss of life or serious property damage. Sub part 1 addresses MSHA ponds for which the design event is the probable maximum precipitation of a 6-hour event or greater event if specified by the Division; or (30 CFR 817.46(c)(2)(ii)(A)).

Interpreting these rules has been done primarily for temporary siltation structures with emphasis on non-MSHA ponds and comments on the MSHA criteria. It is important to note that temporary impoundments are under the same criteria for spillways as sediment ponds. At present, the only impoundment structures that **may** be total containment structures are coal mine waste and coal processing waste ponds. The authority for this can be found under R645-301-536.800 and 536.810, which states, "Coal processing waste banks, dams, and embankments will be designed to comply with...and R645-301-746.100 through R645-301-746.300." R645-301-746.312 is as follows, "Each impounding structure constructed of coal mine waste or intended to impound coal mine waste that meets the criteria of 30 CFR 77.216(a) will have sufficient spillway capacity to safely pass, adequate storage capacity to safely contain, or a combination of storage capacity and spillway capacity to safely control the probable maximum precipitation of a 6-hour precipitation event, or greater event as demonstrated to be needed by the Division." Given this, an MSHA coal mine waste or coal processing waste impoundment may be a total containment structure if it can safely contain the 6-hour probable maximum precipitation. As

spelled out under R645-301-746.340, such ponds, "will be designed and operated so that at least 90 percent of the water stored during the design precipitation event will be removed within a 10-day period following that event." Removal of water may be by gravity drain or some form of pumping plan. What this means for Sunnyside is that both the East and West Slurry Cell can be approved in their present form **when** a plan is formulated and approved for each pond ensuring, "that at least 90 percent of the water stored during the design precipitation event will be removed within a 10-day period following that event."

c: A & B Team Hydros