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April 3, 1997

TO: File

THRU: Joe Helfrich, Permit Supervisor

FROM: Sharon Falvey, Reclamation Hydrologist SRF

RE: Technical Analysis N96-41-2-1, Nevada Electric Investment Company, Wellington Prep., ACT/007/012-96A-2, Folder #3, Carbon County, Utah.

SYNOPSIS:

This analysis provides a review of the information submitted on March 28, 1997. The information submitted included text and design changes proposed to address violation N96-41-2-1. Additional information provided by the consultant, was received on April 2, 1997 and, was considered in this review.

The proposal includes removing the existing primary spillway; blocking off the culvert passing through the embankment with a cement plug, providing a single open channel spillway at the elevation of the existing primary spillway and; removing the existing decant structure. The existing spillway will be raised and used as an inlet.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-700.

Sediment Ponds

References to cross-sections provided for the Road Pond and Auxiliary Pond emergency spillways are found on Drawing 712d. Sediment clean-out elevations and sediment storage volumes are on the stage capacity curves for the Auxiliary, Road and Dryer sediment ponds (see Sheets 2 through 4 of 4 in the Hydrologic Appendix Watershed #4).

The permittee currently has the Road, Auxiliary and Dryer sedimentation ponds in

series. The design flow rates for the Road, Auxiliary, and Dryer Sediment pond spillways were derived based upon information supplied in the Hydrologic Appendix. Hydrologic calculations include: cover type (Sheet 2 of 7), Curve Numbers (Sheet 3 of 7), time of concentration (Sheets 6 & 7 of 7, 10-year 24-hour HEC-1 model printout with peak flows summarized on Sheet 13 of 13, and 25 year 6-hour HEC-1 model printout with peak flow summarized on Sheet 10 of 10). Emergency spillway locations presented for the Auxiliary Pond and Road Pond are found on sheet 712d.

The permittee has designed the Road Pond emergency spillway to spill out the south end of the Road Pond. The control point is set by the road elevation. The emergency spillway for the Auxiliary Pond occurs over the topographically low south portion of the pond. Although the permittee's spillway design is not conventional, the velocity of the design flow across the site was not considered erosive. Because the ponds are incised and the surrounding area is flat, impacts due to failure of the pond would be negligible.

The Dryer Sediment pond is shown to contain the 10-year 24-hour precipitation event from Watershed #4 and is shown to pass the Peak 25-year 6-hour storm event through an open channel spillway when the pond is full. Design depth across the spillway is 13 cfs as presented in Appendix L, and is certified by Dan Guy, Blackhawk Engineering. This information was submitted without the permittee's signature but, relies on information already provided in the plan. The constructed depth of the spillway is shown to be 2 feet which provides more than a foot of freeboard and is therefore considered adequate. The sediment storage requirements were estimated to be 0.036 AF per year. The sediment clean-out level of 5330.31 had an estimated volume of 0.84 AF and exceeds the computed annual sediment volume required. The designed sediment volume is considered adequate.

Currently the proposed principle spillway elevation for the Dryer pond is at 5336.91 according to Map 712D. The existing drop inlet structure and the emergency spillway (at 5337.91 feet) are proposed to be removed and replaced with an open channel spillway. The principle spillway for the Auxiliary pond is at 5335.9 (with a riser) according to Map 712D, while the emergency spillway is at 5340.6 according to the spillway designs. The current principle and emergency spillway for the Road Pond is at 5336.5 and 5339.3 respectively as shown on Map 712D. Because the dryer pond primary spillway is at 5336.91 feet water will rise to this elevation in the Auxiliary and Road ponds prior to spilling through the Dryer Pond spillway.

Relative elevations are included on Maps 712E and 712D with the ponds operating in series the proposed changes design meet the requirements of R645-301-742.300 and R645-301-742.200.

The Dryer Pond decant is proposed to be located at approximately 5.3 feet below the

primary spillway at 5331.62 feet. The sediment clean out level is at 5330.31 feet or 1.31 feet below the proposed decant level. The decant information is provided in Appendix L Volume III-C and is a portable pump with a floating inverted inlet. The intake is designed to draw down water from 12 inches below the water surface to prevent oil and grease entry and is designed to prevent intake at water below one foot above the sediment level. The plan meets minimum design requirements for decants.

It should be noted that the proposed designs may not be considered adequate should the pond be used for anything other than a sedimentation pond. For example, this design would not be appropriate for treating water that may be used as a retention pond in coal processing procedures. Specifically an oil skimmer of some type may be necessary for process waters discharging from the spillway.

Findings:

This amendment does not meet the minimum requirements of the regulations. In order for the operator to provide a clear and accurate plan some text changes need to be provided.

R645-301-120. Correct the table on page Table 742.1 to show a peak flow through the routed dryer sedimentation pond to be 13 cfs. Correct the text on pages 1-7 in section 7.42 so that overlapping information is removed and permanent information from the existing plan is retained. (This can be accomplished through removing overlapping information on page 1, of section 7.42 and providing the information from pages 5 through the end of the section, (dated 11/10/94 and 11/7/96) beginning with section 7.42.300 Diversions).

Recommendation:

It is recommended the following parts of this amendment be approved. All information submitted in the amendment received on March 28, 1997 and the sheet contained in appendix L, entitled Dryer Pond Spillway, which was submitted on April 02, 1997. It is recommended that in the existing plan, page 5 through the end of the section (dated 11/10/94 and 11/7/96), **are not to be replaced with this approval, and that pages 1-5 from this submittal replace pages 1-4 until further text clarification is provided.** The approval of this design information for using the ponds in series and routs the flows through spillway when the pond is full. The correct design flow across the spillway (13 cfs) was presented in the page submitted on April 02, 1997.

cc: Paul Baker
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