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October 11, 1996

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TO: Pete Hess

FROM: Randy Harden

RE: RR2/RR2 Retaining Walls/Southern Embankment of Sediment Pond 12B, Castle Gate Preparation Plant, ACT/007/038-96-D, Folder #2, Carbon County, Utah

In response to your request for additional input on the re-construction of Sediment Pond 12B, I have reviewed the proposal and your draft letter and have the following comments.

As stated in the plan in section 4.2.3.1, Pond Embankment Stability Evaluation, the requirements based on the RB&G Engineering report are that the pond be over excavated and that the slope materials be replaced at least 6 feet horizontally with suitable material. This alternative was selected over reduction of the slope from 1.5:1 to 2:1 due to the areal constraints of the facilities surrounding the pond. Map 26B does not indicate that this will be accomplished during construction. Map 26B should be revised to clearly indicate the extent of over-excavation and replacement of materials to occur in those areas necessary to maintain a minimum factor of safety for the inslopes of the pond embankment and over-excavation necessary for foundation preparation for the embankments.

Design assumptions used in determination of the embankment stability were based on steady state (pond full) conditions. These analyses should also consider embankment conditions during rapid drawdown (pond empty w/saturated embankments) and show that under these conditions, a minimum factor of safety of 1:1 can be achieved. Additional concerns regarding the embankment stability of the northern inslopes of the pond are also apparent regarding ground vibration from trucks and trains on either side of the pond itself. Seismic evaluation of the embankment should be conducted based on ground velocities generated from truck and train traffic adjacent to the pond.

The plan further indicates that the material used to backfill the Hilfiker retaining wall is normally free-draining material. Where the pond embankment abuts the retaining wall, the material adjacent to the wall has been sized to prevent excessive seepage from occurring. The Hilfiker retaining wall will become the southern embankment for the sediment pond. Based on the characterization of the materials described as fill materials for the Hilfiker embankment, it appears that excessive pond seepage may occur through the retaining wall itself. This presents concern regarding stability of the Hilfiker embankment should saturation

of the embankment occur from the pond, as well as excessive seepage and water loss from the pond through the Hilfiker embankment. These concerns need to be evaluated and discussed further in the proposal prior to approval.

Foundation preparation and excavation requirements for the removal of unsuitable materials and sewage and water lines should also be provided in the construction details for the pond excavation. More detail needs to be provided in the text of the plan and on the drawings regarding foundation preparation and construction of the Hilfiker embankment. Appendix A-6 provides recommended details and design information, but the plan is inadequate in describing specifically which methods will be utilized during actual construction.

Regarding certification requirements in the plan, the drawings have been certified and Appendix A-6 provides a certification statement qualifying the embankment stability calculations. This conforms to the minimum requirements within the Coal Program. The engineering analysis provided for retaining 1.5:1 slopes if embankment materials are replaced. Information and designs in section 4.2 conform to the intent and the recommendations made in Appendix A-6. Thus the plan and designs do meet the certification requirements under the rules.

In conclusion, my recommendation would be to not approve the proposed amendment until such time as concerns regarding the stability of the pond and Hilfiker embankments are adequately addressed and the drawings more precisely delineate the work required during pond construction. More detailed information on the drawing would help assure adequate construction as well as afford easier inspection of the facility during construction.

cc: J. Helfrich
D. Haddock

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