



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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August 7, 1989

TO: Susan Linner, Permit Supervisor

FROM: Mike DeWeese, Reclamation Hydrologist *MD*

RE: Final Reclamation As-Built Report, North American Equities, LTD., Blazon #1 Mine, Folder #2, Carbon County, Utah

SUMMARY:

The operator's as-built report submittal received July 21, 1989 has been reviewed regarding hydrologic concerns. This submittal adequately addresses the remaining outstanding stipulation regarding culvert C. The submittal is now considered technically adequate.

ANALYSIS:

The operator has revised the design of culvert C to include energy dissipators within the culvert structure to mitigate erosive exit velocities. The energy dissipation structure utilizes a series of five roughness rings placed at six foot intervals upstream from the culvert outlet (figure 3.1). The furthest upstream ring is 12 inches high and the remaining four downstream rings are 6 inches high. Each ring extends around the culvert rib to a height of 5 feet 3 inches and has a one foot gap at the bottom. The operator has adequately demonstrated that this measure will reduce the culvert exit velocity resulting from the design event to a non-erosive level.

As a result of concerns raised by Larry Dalton, Division of Wildlife Resources, the operator has installed additional baffles in culvert C to facilitate fish passage. Based on criteria provided by Mr. Dalton, two six inch high baffles were installed at 23 foot intervals upstream from the first roughness ring (figure 3.2). These baffles are constructed at a level with a one foot gap at the bottom center. The operator has adequately demonstrated that velocities in culverts C and B resulting from the average annual peak flow are below the critical level for fish passage.

RECOMMENDATIONS:

The Division recommends that the Reclamation As-Built Report for the Blazon #1 Mine be granted final approval.

BT98/61