

**Horse Creek Re-Regulating Reservoir Level II Project,
Goshen Irrigation District,
Torrington, Wyoming**

Client: Wyoming Water Development Commission
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In a contract administered by the Wyoming Water Development Commission (WWDC) in May of 1993, the staff of Anderson Consulting Engineers, Inc. (ACE) were contracted to provide professional services related to the Goshen Irrigation District (GID) Re-regulating Reservoir Level II Project. The purpose of the project was to investigate the feasibility of storing excess flows (operational waste) and storm flows in a re-regulating reservoir located on Horse Creek located in Goshen County, Wyoming. Construction of such a facility would permit the short-term storage of operational waste and stormwater flows for release later in the irrigation season.

The investigation focused on the evaluation of alternative sites for the re-regulating reservoir. Following coordination with the GID and WWDC, four alternative sites were selected for initial evaluation. Criteria were established to evaluate the advantages and disadvantages of each site and a decision matrix developed to assist in the selection of the preferred reservoir location. Following a coordination meeting to discuss the alternative evaluation, the GID and WWDC selected a reservoir site for more detailed evaluation.

A detailed analysis of the diversion and spill records (daily water reports) of the GID was conducted to determine the water available for storage. This analysis provided the frequency and timing of the operational waste along with the average volume of water wasted on a biweekly, monthly, and annual basis. In addition, the average operational waste volume per month during the irrigation season was also identified.

A geotechnical/geological investigation of the preferred sit(s) was conducted and conceptual design information and cost estimates prepared. Operational considerations for the re-regulating reservoir were identified along with the permits necessary for construction of the reservoir. The conceptual designs included the determination of the geometry of the dam embankment along with the configuration of the outlet works and all appurtenant structures. The conceptual design information was completed in sufficient detail to promote the estimation of unit costs and the development of total costs for the final design and construction of the project. Finally, an economic analysis was completed to assist the State of Wyoming in the development of a fair and equitable financing plan for future project improvements.