

### III - HISTORY OF PROJECT

3-01 Authorization. Mathews Canyon Dam was authorized by act of Congress, Flood Control Act of 1950, Public Law 516, Eighty-first Congress, second session, and approved 17 May 1950 in accordance with the recommendations of the Chief of Engineers in his report as contained in House Document Number 530, Eighty-first Congress.

**3-02 Planning and Design.** Records of flooding in the Muddy River Basin date back as early as 1905. According to these records, the floods that occurred below Mathews Canyon Dam prior to its construction caused severe property damage, mainly to the Union Pacific Railroad and agricultural areas. From 1906 to 1941, inclusive, the railroad company spent approximately \$2,300,000 (1955 price levels) for restoration of the main line, and more than \$5,500,000 (1955 price levels) for its relocation to higher elevations. Extended interruption of the railroad service was common after each significant flood event, ranging from more than two weeks (in 1946) to six months (in 1910).

These events led the local government, through their state's representatives, to seek the Federal Government's assistance to investigate and provide a flood control measure for the area. Planning studies for a flood control measure began as early as 1946. Subsequent investigations led to a flood control improvement project that would comprise of two interdependent units - the Mathews Canyon and Pine Canyon Dams. Project alternative plans for Mathews Canyon Dam ranging from various configurations of the dam embankment and spillway structure were investigated. The selection of the recommended plan was coordinated with the office of the State Engineer of the State of Nevada, United States Bureau of Reclamation, the United States Soil Conservation Service, and the local agencies. The overall flood control project was recommended for approval in the Chief of Engineer's report, dated 12 September 1949. In May 1950, the overall Meadow Valley Wash Basin Flood Control Project was Congressionally authorized, as set forth in House Document No. 530, 81<sup>st</sup> Congress, 2<sup>nd</sup> session. Hydrologic information pertaining to the design of the two dams is documented in a Corps' report entitled "Design Memorandum No. 1, Hydrology for Pine Canyon and Mathews Canyon Dams, Meadow Valley Wash and Lower Muddy River Basins, Nevada", dated April 1955.

A Corps document entitled "Design Memorandum No. 2 - General Design for Mathews Canyon Dam" and dated June 1955 describes the recommended project plan for Mathews Canyon Dam as follows: *"The project recommended in this memorandum provides for the construction of a flood-control reservoir at the Mathews Canyon site. Mathews Canyon Dam would be an earth-fill structure about 800 feet long and 71 feet high above stream bed. At spillway crest (elev 5,461), the reservoir would have a capacity of 6,260 acre-feet including an allowance of 1,000 acre-feet for sediment and*

*debris storage. The reservoir would reduce the reservoir design flood from a peak inflow of 8,500 cubic feet per second to a maximum outflow of 260 cubic feet per second with the water surface at spillway crest. No storage for water conservation would be provided.” The Design Memorandum further states: “The cost to the United States for construction of the Mathews Canyon Dam and Reservoir Project is estimated at \$830,000, on the basis of June 1955 price levels. The time estimated to complete the work is estimated at 1 year”.*

**3-03 Construction.** Mathews Canyon Dam was constructed at the same time as Pine Canyon Dam. Construction of both dams began on 18 March 1957 and was completed on 16 December 1957. Mathews Canyon Dam and Pine Canyon Dam were coordinated improvements under the overall plan of improvement for flood control. The total cost of the two projects (excluding maintenance and operation expenditures) through December 1957, was \$1,401,000.

**3-04 Related Projects.** Pine Canyon Dam is located approximately 5 miles southwest of Mathews Canyon Dam and the size of its drainage basin behind the dam is about 45 square miles. The Pine Canyon Dam project was completed on 16 December 1957, and consists of an embankment and dike, outlet works (intake structure and conduit), spillway, and reservoir. Pertinent data about Pine Canyon Dam are included in this manual under Exhibit B. Other existing projects located within the Muddy River Basin include various small dams and weirs constructed for the purposes of flood control, erosion control, irrigation, and recreation; however, none of these structures significantly affect large floods.

**3-05 Modifications to Regulations.** The water control plan currently utilized for this dam has never been modified. Mathews Canyon Dam has an ungated outlet, which releases flood waters through a 3.5-foot diameter circular conduit. The outlet works does not include any gate nor mechanical equipment that permit adjustment of reservoir outflows.

**3-06 Principal Regulation Problems.**

**a. Spillway Inadequacy.** The report entitled “Hydrology and Hydraulic Review of Design Features of Existing Dams” for Pine Canyon and Mathews Canyon Dams, dated July 1978, contains a routing of a revised probable maximum flood (PMF) which was based on updated criteria set by the National Weather Service. Based on the results of the routing, the spillway was found inadequate to pass the revised PMF with the minimum required 3 feet of freeboard. In order to correct this design deficiency, the report recommended that the dam be raised by 1.7 feet, or that the spillway be widened from 50 feet to 100 feet. Currently, however, there are no plans to implement any of these recommendations.