Milltown Dam was constructed in 1906 and 1907 as a rock fill timber-crib dam located at the confluence of the Blackfoot and Clark Fork Rivers at the community of Milltown. It was constructed by the W. A. Clark interests and acquired by the Montana Power Company in 1929. The dam has been modified over the years and now consists of a composite of timber and concrete construction. It presently is 668 feet long with an operating head of 30 feet and a structural height of about 60 feet. It has an installed capacity of 3400 kW. It generates at an average capacity of 2000 kW and produces about 17 million kWh of electric power annually. It is operated as a run-of-river plant utilizing the natural flow of the rivers. The reservoir behind the dam covers about 500 acres and holds about 820 acre/feet. The reservoir is essentially filled with sediments with depths of up to about 25 feet. Indications are that much of the sediment contains elevated concentrations of heavy metals.

Due to its age and type of construction, the project has become increasingly difficult to maintain as a functional and safe project. On three occasions since 1973, the dam has experienced extensive damage due to deteriorated timbers and excessive leakage through the structure. Minor continuous movement in the structure is occurring. In response to these problems, the Montana Power Company studied options for the future use of the project. Three primary objectives governed these studies. They were:

1. Modifications to the project must be such that any water-retaining structures must be safe so there is no hazard to downstream residents and property.
2. Modifications must minimize environmental impacts. Of primary importance are measures to prevent the release of sediments in hazardous quantities to the Clark Fork River.
3. Modifications must be done in a cost-effective manner to minimize impact upon the rising cost of energy.

Three basic options were considered: (1) retirement of the project with removal of the structures, (2) semi-retirement with partial structure removal, and (3) rehabilitation of the project.

1. Complete retirement of the project consists of removal of the structures, establishment of river channels through the reservoir with the channels properly stabilized and armored to prevent erosion of reservoir sediments.

2. Partial retirement consists of removal of the powerhouse and generating equipment, lowering of the spillway crest, and stabilization and armoring of the upstream river channels to prevent erosion of reservoir sediment.

3. Rehabilitation consists of performing the necessary corrective measures for deficiencies in the dam and replacing the existing generating equipment. Three levels of generating capacity were examined:

- 3225 kW, which would utilize the existing powerhouse and use 1500 ft3/s of the river flow. This duplicates the present generating capacity of the plant.
• 4300 kW housed in a new powerhouse and which would use 2000 ft³/S which duplicates the hydraulic capacity of the existing plant.
• 6450 kW housed in a new powerhouse and which would require 3000 ft³/s of flow.

The option which best meets the established objectives is to rehabilitate the project by correcting deficiencies in the dam and replacing the outdated generating equipment with 4300 kW of new capacity. Rehabilitation represents the most cost-effective method of restoring the project as a safe, functional plant with the least apparent environmental impact. The retirement options would involve the disturbance of about 150 to 200 acres of the reservoir estimated to contain 4 million yd³ of sediments. Under rehabilitation, disturbance is limited to the immediate vicinity of the dam and, through utilization of proper construction methods, release of sediment can be minimized. In addition, there may be the potential for a long-term improvement in water quality in the river by the reduction of turbidity presently associated with operating practices required for the project. While not the most economical source of power available, the rehabilitation represents a lesser impact on the users of power than either retirement option.

Current studies in cooperation with various resource agencies and interested groups are underway to fully define environmental impacts, particularly the impact to the Clark Fork River. These studies will allow development of the best construction methods to be used to prevent release of sediment in hazardous quantity to the river. The studies also form a portion of the Montana Power Company’s application to amend our Federal Energy Regulatory Commission license for the project. This agency has jurisdiction over the project and must provide authorization for the rehabilitation.

After rehabilitation, the project will continue to operate as a run-of-river plant. Flows from the Clark Fork and Blackfoot Rivers will be passed through the project as they occur. Flow in excess of the generating equipment capacity will be passed through the spillway facilities. As flows drop below the maximum capacity of the generating equipment, power generation will be reduced accordingly.

The run-of-river operation will continue to provide a relatively stable reservoir level at the current full pond elevation. Some variation in reservoir levels similar to what currently occurs may occur during periods of rapidly changing stream flows. The current practice of drawing the reservoir to crest each year to reestablish the spillway control gates will be eliminated, except for unusually high runoff flows.