

Buffalo Rapids Project

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Buffalo Rapids Project

The Buffalo Rapids project is a small two division pumping plant located on the Lower Yellowstone River. Despite its small size the Buffalo Rapids Project provides a much needed service to the surrounding irrigation lands. The Buffalo Rapids Project does not contain a dam or a reservoir.

Project Location

Located in southeastern Montana, the Buffalo Rapids Project is divided into two separate units, the First and Second Divisions. The Project lies along the Yellowstone River between Miles City and the upper end of the Lower Yellowstone Project in Custer, Dawson, and Prairie Counties, Montana. Principal features of the Project include six pumping plants, sixty-three miles of canals and eighty-three miles of laterals; five of the pumping plants pump water directly from the Yellowstone River and one relift pumping plant provides irrigation water for 22,719 acres of land in the vicinity of Glendive, Fallon, and Terry, Montana. All pumps on the Unit are operated electrically with power supplied by the Fort Peck Project; the Fort Peck power system has been integrated with the Pick-Sloan Missouri Basin Program to serve a common market area. Water is pumped directly out of the Yellowstone River so storage is not required.¹

More specifically, the First Division is comprised of an intake channel of 1,000 feet, a three unit pumping plant with a capacity of 330 cfs and 103-foot lift, over thirty-three miles of canal, and more than fifty-six miles of laterals. While the Second Division Shirley Unit has a pumping plant with a capacity of 111 cfs and fifty-one foot lift, just over thirteen miles of canal, and over fifteen miles of laterals. Second Division Terry Unit has a pumping plant with a capacity of sixty-one and a half cfs and 109-foot lift, seven and a half miles of canal, and over fifteen miles of laterals. Second Division Fallon Unit has a pumping plant with a capacity of seventy-two cfs and forty-nine-foot lift, nearly seven miles of canal, and eight miles of laterals.²

Historic Setting

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1. United States Department of Interior, Water and Power Resources Service, *Project Data*, (Denver: U.S. Government Printing Office, 1981), 89, 467.
 2. United States Department of the Interior, Bureau of Reclamation, *Repayment of Reclamation Projects*, (Washington: U.S. Government Printing Office, 1972), 46.

Montana has long been a land of wide open spaces and staunch individuals. More than any other state, Montana is Lewis and Clark country; Montana exemplifies the exploration of Meriwether Lewis and William Clark in 1804. Together with the Shoshone Princess Sacagawea they spent more time and covered more miles there than in any other state. Yet, more than anything or anyone, Montana belongs to the miners.³

The State Seal of Montana is inscribed with the motto “Oro y Plata,” (gold and silver) under a miner’s crossed pick and shovel and a plow. Almost overnight, mining attracted thousands of people, established a more enduring economic base, and brought a quickening exploitation of resources and despoliation of the environment. John Owen made the first documented discovery of gold, on a Sunday in mid-February 1852. The influx had begun and in time over \$30 million in gold was taken out of the area around Helena. Eventually the rush in Montana for silver and gold turned into a rush for copper.⁴

The Anaconda Copper Mining Company began in 1876 as the Anaconda Gold and Silver Mining Company. Marcus Daly bought the Anaconda mine in 1876 and with the help of California capitalists he formed the Anaconda Gold and Silver Mining Company, soon gold and silver gave way to rich copper. Daly sensing a growing demand for copper adapted accordingly. In 1889, Daly reorganized the Anaconda into the Amalgamated Copper Company, dominated by the Standard Oil Company. In 1910, the Amalgamated merged with William A. Clark’s holding to become the Anaconda Copper Mining Company. The Anaconda was the epitome of corporate power in the Nation, controlling the newspapers as well as the local economy. “With thirty shafts on Butte Hill; reduction and smelting works in East Helena, Anaconda, and Great Falls; vast coal, railroad, lumber, hotel, and mercantile enterprises, not to mention newspapers and close ties with Montana Power; Anaconda for a time would be the most potent force in the state.”⁵

On the other side of the state and a world away from the Anaconda Mine, the Buffalo Rapids Project was unaffected by mining interests. The region in which the Buffalo Rapids

3. Spence, Clark C., *Montana: A Bicentennial History*, (New York: W. W. Norton and Company, Inc., 1978), 11.
4. Spence, 24, 25, 26.
5. Spence, 95, 96, 105, 196, 197, 106.

Project is situated was first settled in the early 1880's. Cattlemen, mainly from New York and Iowa, enticed by a plentiful supply of pasture land developed large scale cattle ranching; individual ranches flourished, running as many as 50,000 head of cattle. In 1886, adverse weather and poor market conditions caused severe losses, forcing many ranchers out of business. The 1890's brought improved conditions and the establishment of sheep herding. By 1900 all of the large cattle ranches had disappeared, thanks largely to the advent of the sheep wagon in 1898 which greatly expanded the sheep industry. Sheep, with a few small cattle ranches thriving in some places, remained the principal industry until 1908 when dry farming gained popularity.⁶

Project Authorization

On September 17, 1937, President Franklin D. Roosevelt approved the Glendive Unit to irrigate an estimated 15,500 acres with funds provided under the Emergency Relief Appropriation Act of 1937. Three years later, on May 15, 1940, the President approved the Glendive Extension for an additional 3,000 acres under the Water Conservation and Utilization Act of May 10, 1939. Together the Glendive Unit and Extension constitute the First Division.

The President approved the Shirley, Terry, and Fallon Units of the Second Division on October 11, 1939. A revised plan was approved on May 15, 1940, under the Water Conservation and Utilization Program.⁷

In 1933 in an effort to combat depressed conditions in the valley, local businessmen formed the Mid-Yellowstone Recovery Association. The Association obtained funds from the National Industrial Recovery Act for the Bureau of Reclamation to conduct an investigation of the valley to determine the feasibility of using water from the Yellowstone River for irrigation purposes. The investigation was completed in 1935 with favorable results, locating approximately 56,000 acres suitable for irrigation. Authorization for construction on the Glendive Unit was based on the report of findings from this investigation.⁸

Construction History

6. Denver Colorado, National Archives and Records Administration: Rocky Mountain Region, Records of the Bureau of Reclamation, Record Group 115, Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. I, 1937, 21.

7. *Project Data*, 91.

8. *Project Data*, 89; Burnett, D. R., "Construction Features of the Glendive Unit." *The Reclamation Era*, 30, No. 5 (May 1940): 125.

The First Division

Containing about 17,000 acres of irrigable land, the Glendive Unit lies on the west side of the Yellowstone River between Fallon and Glendive, Montana. Construction of the unit began November 12, 1937, with ground breaking for excavation of the main canal.⁹ The following April 1938, excavation began on the lateral system.¹⁰

Work was carried out by Government forces directed by the Bureau of Reclamation. Except for supervisory employees all labor was procured from the Works Progress Administration (WPA) rolls of the region. The Glendive Unit was the first cooperative construction project between the Bureau of Reclamation and the WPA. In order to complete the Project and keep men off of the relief rolls, work continued year round, even though construction during the winter was not usually favorable.¹¹

The first operation of the pumping station occurred on September 26, 1939, before the Unit was completed; diverted water was allowed to flow about ten miles down the main canal.¹² Work continued year round until completion in July 1940; water was delivered to the surrounding lands for the 1940 irrigation season.

Immediately after completion of the Glendive Unit in July 1940, work began on the Glendive Extension.¹³ Funds were allotted for the Glendive Extension from the Great Plains Funds of the Interior Department Appropriation Act of 1940.¹⁴ Work continued on a year round basis and the Extension was completed in 1942.¹⁵

The Second Division

Reclamation developed the Second Division at the same time as the First Division. It is comprised of the Shirley, Terry and Fallon Units. The Shirley Unit is located in Prairie and Custer Counties; the Unit runs thirteen miles in length along the southern bank of the Yellowstone River beginning eighteen miles northeast of Miles City. Also located on the

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9. Burnett, 125.
 10. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. II, 1938, 8.
 11. Burnett, 125, 126, 128.
 12. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. III, 1939, 8.
 13. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. IV, 1940, 8.
 14. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. V, 1941, 9.
 15. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. VI, 1942, 27.

southern bank of the River, the Terry and Fallon Units encircle the towns of Terry and Fallon respectively.¹⁶ William G. Sloan—who later authored Reclamation’s part of the Pick-Sloan Missouri Basin Program (P-SMBP)—conducted the investigation of the feasibility of the Second Unit in June 1939. WPA appropriations and labor were made available in September 1940, for construction of the Shirley and Terry Units of the Second Division.¹⁷

Construction on the Second Division, Shirley and Terry Units, commenced in September 1940. As with the First Division, work was carried out by workers from the WPA rolls and Civilian Conservation Corps (CCC) Camp enrollees, under supervision of the Bureau of Reclamation.¹⁸ The CCC Camp was discontinued in July 1942.¹⁹ In January 1943, WPA assistance was terminated and replaced by workers from the Civilian Public Service Camp. Even though wartime demands on time and money were stringent, work on the Units progressed fairly steadily until completion of the Shirley Unit in 1943 and the Terry Unit in 1945. Water was first delivered to the Shirley lands in the 1944 irrigation season and to the Terry lands in 1945.²⁰

Between 1941 and 1945, due to wartime demands on materials, the War Production Board had to approve any new construction works. Reclamation’s request to begin construction on the Fallon Unit was denied so work was delayed until 1946. It was decided that work on the Unit would be carried out by contract instead of by Government force. The contract was awarded to Long Construction Company of Billings, Montana on July 12, 1946, and work began later the same year.²¹ The contractor completed work on the Unit a year later on December 6, 1947.²² The Unit was subsequently placed in operation in 1950.²³

Post-Construction History

The First Division

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16. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. V, 1941, 10.
 17. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. IV, 1940, 8.
 18. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. V, 1941, 8, 11.
 19. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. VI, 1942, 8.
 20. Buffalo Rapids Project, Montana, Annual Project History, First Division: Vol. VII, 1943, 7; Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. VII, 1943, 14; Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. IX, 1945, 14.
 21. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. X, 1946, 20.
 22. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XI, 1947, 17, 18.
 23. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XIV, 1950, 10.

Operation and Maintenance of the First Division was transferred to the Farm Security Administration on March 31, 1943. A year later, 1944, O&M was transferred to the Buffalo Rapids Farms Association.²⁴ Also in 1944 the third pumping unit was installed on the First Division.²⁵

Between 1944 and 1973 only routine maintenance was necessary on the First Division. However, due to floods in, 1970 and 1971, in 1973 a retaining wall was built onto the Glendive plant to protect the plant and motor in the event of a reoccurrence.²⁶

The Second Division

An electrical storm, accompanied by high winds occurred on the Shirley Unit, July 10, 1948. Simultaneously, the hills and watershed experienced heavy hail and torrential rainfall of short duration. Crops of grain, alfalfa, corn and sugar beets on the Unit were beaten to the ground by the hail. Creeks and culverts were running at flood stages. "Sheets of water from the hills discharged into the Shirley canal, which overflowed its lower bank in many places, and Project lands were under a complete running lake of water. Both canal banks and canal structures were damaged." In some places small dams were caused by silt and gravel washed into the canal. All damage was repaired by the following irrigation season.²⁷

On August 19, 1946, the power supply to the pumps on the Project was transferred from the Montana-South Dakota Utilities Company to the Fort Peck Project.²⁸

In 1949 negotiations for repayment contracts began between the Bureau of Reclamation and the Buffalo Rapids Irrigation Districts No. 1 and 2.²⁹ On March 22, 1954, sixty year repayment contracts were executed with the Irrigation Districts.³⁰

Effective January 1, 1953, operation and maintenance was transferred from the Buffalo Rapids Farms Association to the Buffalo Rapids Irrigation District No. 2. At the same time that O&M was transferred, the Buffalo Rapids Irrigation Districts No. 1 and 2 merged to form a

24. Buffalo Rapids Project, Montana, Annual Project History, First Division: Vol. VII, 1943, 7.
25. Buffalo Rapids Project, Montana, Annual Project History, First Division: Vol. VIII, 1944, 14.
26. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. XXXVII, 1973, 3.
27. Buffalo Rapids Project, Montana, Annual Project History, First Division: Vol. IX, 1948, 11.
28. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XII, 1951, 3.
29. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XIII, 1949, 8.
30. *Repayment of Reclamation Projects*, 47.

Board of Control. The Board of Control, comprised of the six irrigation Commissioners and a seventh member appointed by them, was formed to operate the entire Buffalo Rapids Project.³¹

In 1957 additional drains were constructed on the Project to alleviate drainage problems associated with distribution of irrigation waters. Twenty-eight miles of drains were constructed including seven miles of tile drain, which successfully corrected the drainage problem.³²

Other than routine maintenance no other work has been necessary on the Project.

Settlement of the Project

Project settlement and development was under the jurisdiction of the Farm Security Administration, Department of Agriculture, which was responsible for land improvements. In June 1946 project settlement and development was transferred within the Department of Agriculture to the Soil Conservation Service.³³

“Under the Water Conservation Utilization Act the Department of the Interior was responsible for construction of the irrigation works and the Department of Agriculture was responsible for land development and settlement activities.” The Department of Agriculture acquired title to considerable land in the project area, facilitating Project development. In March 1943 the irrigation works, substantially completed, were transferred to the Department of Agriculture for completion of construction, operation and maintenance, and negotiation of contracts for repayment of reimbursable construction costs.³⁴

On January 1, 1950 the irrigation works were transferred back to the Bureau of Reclamation. The irrigation system had been under the control and supervision of Reclamation for over a year prior to their official transfer. A three way agreement between the Buffalo Rapids Farms Association, longtime managers of the Project, the Department of the Interior, and the Department of Agriculture was executed in order to transfer the irrigation system from the Soil Conservation Service to the Bureau of Reclamation.³⁵

In 1949 the Soil Conservation Service leased the remaining farm units on the Second

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31. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XIII, 1952, 10; Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. XVII, 1953, 4.
 32. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. XXI, 1957, 13.
 33. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. X, 1946, 23.
 34. Buffalo Rapids Project, Montana, Annual Project History, First Division: Vol. X, 1949, 6.
 35. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XIII, 1949, 8.

Division to the Buffalo Rapids Farms Association, which in turn leased parts to individual farmers already on the Project. In order to prime the land for settlement, the Association farmed land that was not re-leased with forage crops such as clover and alfalfa.³⁶ By 1954 all of the farm units on the First Division had been sold to individual farmers.³⁷

Uses of Project Water

Project soil is fertile and produces a large variety of crops when irrigated. Alfalfa, sugar beets, beans, flax, potatoes, and wheat are among the principal crops produced.³⁸

A notable use of Project water was discovered in 1949. Joseph Crisafulli, Sr. and his four sons--Joseph, Jr., Leonard, Angelo, and Frank--farmers on the Buffalo Rapids Project, revolutionized winter vegetables, by making use of existing technology. Thanks to a freezing plant on the farm, corn on the cob is no longer a delicacy to be enjoyed only in the summertime.

Having long grown truck crops near Glendive, Montana, Joseph Crisafulli, Sr. was an enthusiastic supporter of the Buffalo Rapids Project. Experience had dictated that superior crops could be grown in eastern Montana, as could specialty crops. The only problem was lack of a suitable market.

For many years the Crisafullis' experimented with various crops and farming methods. They marketed their vegetables themselves, often driving as far as 400 miles before disposing of a load; meanwhile they were exploring new marketing methods and processing techniques. In the midst of developing marketing strategy and experimentation they discovered a variety of sweet corn which proved to have superior eating qualities. One of the boys then suggested they try freezing the corn. They froze 3,000 pounds at a local locker plant, which turned out better than they expected. Subsequently, Joseph, Jr. was dispatched to the East with orders to consult food technologists on freezing and canning and to come back with directions on how to do the job. Joseph, Jr. came back with notes on processing and equipment not to mention the fact that he had located a market in the New York City area. The original 3,000 pounds were wildly successful and the Crisafullis' were deluged with additional orders. It was decided that a

36. Buffalo Rapids Project, Montana, Annual Project History, Second Division: Vol. XIII, 1949, 16.
37. Buffalo Rapids Project, Montana, Annual Project History, Combined: Vol. XVIII, 1954, 14.
38. *Project Data*, 91.

freezing plant needed to be established on the farm.

In 1945 the freezing plant was built. Like the rest of the farm it was a family operation. Because of the substantial insulation of its walls, a hillside potato cellar proved to be the ideal spot for their cold storage plant. Angelo was responsible for dreaming up and making many of the machines they needed. Leonard was their chemist. He was attending medical school at the time and was dispatched to run enzyme and bacteriological tests during the processing season.

In 1946, their first year of operation, five carloads of corn on the cob were frozen and shipped from the farm, one-fifth of all corn frozen on the cob in the United States. Their output was repeated in 1947 and 1948.³⁹

“Crisafullis’ endeavors portend future opportunities in the Great Plains. They are demonstrating that its soil and sunshine in proper proportions with irrigation water, ingenuity, foresight, perseverance, and perspiration are remarkably productive.”⁴⁰

Water from the Buffalo Rapids Project guarantees that the Crisafullis are among the Nation’s largest producers of frozen corn on the cob.⁴¹

The Buffalo Rapids Unit continues to be productive. In 1992, nearly 23,000 acres on 182 farms were irrigated with waters from the Project.⁴²

39. Abrahamson, John D, “Frozen Corn on the Cob,” *The Reclamation Era* 35, no. 2 (February 1949): 25-7.

40. Abrahamson, John D, “Frozen Corn on the Cob,” *The Reclamation Era* 35, no. 2 (February 1949): 27.

41. Abrahamson, John D, “Frozen Corn on the Cob,” *The Reclamation Era* 35, no. 2 (February 1949): 25-7.

42. United States Department of the Interior, Bureau of Reclamation, *1992 Summary Statistics: Water, Land, and Related Data*, (Denver, 1995), 265.

Bibliography

Archival Collections

- Denver Colorado. National Archives and Records Administration: Rocky Mountain Region. Records of the Bureau of Reclamation. Record Group 115.
- Buffalo Rapids Project, Montana, Annual Project History, Combined: 1937-1942, 1953-1960, 1973.
- Buffalo Rapids Project, Montana, Annual Project History, First Division: 1943-1944, 1948-1952.
- Buffalo Rapids Project, Montana, Annual Project History, Second Division: 1943-1952.
- Office of the Chief Engineer, Denver, Colorado. General Correspondence Files: 1902-1942 (Engineering). Buffalo Rapids.
- Bureau of Reclamation, Project Correspondence File: 1930-1945. Buffalo Rapids.

Government Documents

- United States Department of Interior, Water and Power Resources Service. *Project Data*. Denver: U.S. Government Printing Office, 1981.
- United States Department of the Interior. Bureau of Reclamation. *Repayment of Reclamation Projects*. Washington: U.S. Government Printing Office, 1972.
- United States Department of the Interior. Bureau of Reclamation. *1992 Summary Statistics: Water, Land, and Related Data*. Denver, 1995.

Articles

- Abrahamson, John D. "Frozen Corn on the Cob." *The Reclamation Era*, 35, no. 2 (February 1949): 25-7.
- "Buffalo Rapids Receives Allotment." *The Reclamation Era*, 27, no. 9 (September 1937): 225.
- "Bureau to Operate Buffalo Rapids." *The Reclamation Era*, 33, no. 1 (January 1947): 22.
- Burnett, D. R. "Construction Features of the Glendive Unit." *The Reclamation Era*, 30, no. 5 (May 1940): 125-8.
- Grimes, Joseph W. "Buffalo Rapids No. 2 Progressing." *The Reclamation Era*, 32, no. 1 (January 1942): 19.

Books

- Spence, Clark C. *Montana: A Bicentennial History*. New York: W. W. Norton and Company, Inc., 1978.

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