

Williston Project

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Bureau of Reclamation
2010

Reformatted, Edited and Published
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2013

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Williston/North Dakota Pumping Project

An item in the June 1922 *Reclamation Record* read more like a dispatch from an army unit under siege than a North Dakota farmer's assessment of a federal water project in trouble. The correspondent, M. Sorensen, explained to the magazine's readers, "Everyone knows that the North Dakota pumping project has had about the hardest struggle of them all. Private lands, large holdings, tenancy, nonresident owners, land speculation, humid years in a normally nonarid climate, the early day horseback farmer—all had a hand in its misfortune." Sorensen ended his sketch with the hope that his neighbors were finally learning enough about irrigation to save the project. He had no way of knowing that the North Dakota Pumping, or Williston Project, would soon cease to exist. From authorization of construction in 1906 to notice of cancellation in 1926, bad luck and lethargy foiled the federal government's aim to water the bench lands of northwest North Dakota. At Williston, the United States Reclamation Service (USRS) operated their first energy-generating and pumping station, pumping barges, and the government's only coal mine. Beyond the novelty, Reclamation's attempt to harness the forces of water and fuel were not enough to interest a community unexcited by irrigation and bound in considerable absentee ownership.¹

Project Location

"This land has no decided slope."

This observation from a Reclamation engineer in 1910 describes a landscape split between infinite prairie and endless sky. The only natural landmarks intruding onto this horizon are the Missouri River and its tributaries. The writer George Fitch described the Missouri as a river that "plays hide and seek with you today and tomorrow follows you around like a pet dog with a dynamite cracker tied to its tail." In a wet year 70,000 cubic feet per second (cfs) of water cuts away at the riverbanks, lifting and depositing silt along the channel. The shifting sands made construction of a dam and reservoir near the Missouri a risky proposition.²

1. M. Sorensen, "The North Dakota Pumping Plant," *Reclamation Record*, 13 (June 1922): 123.

2. U.S., Department of Interior, United States Reclamation Service, "Annual Project History, Williston Project," Vol. 2, 1910, 2; in RG 115, Records of the Bureau of Reclamation, Project Histories 1909-1926, National Archives and Records Administration, Denver, Colorado; hereafter cited as RG 115; *The Wonder of Williams: A History of Williams County, North Dakota*, Vol. 1 (Williams County Historical Society, 1975), 45.

Designed as two separate units, Williston and Buford-Trenton, the Williston Project served the city of Williston and the bench lands of Williams County, North Dakota. The Williston Unit paralleled the Missouri River's north bank for eight miles, extending northward in a narrow 16-mile strip along the Little Muddy Creek, a tributary of the Missouri. Twenty-five miles west of Williston, along the banks of the Missouri, was the Buford-Trenton unit. The irrigable area covered by both units exceeded 26,000 acres, of which about 23,000 were under private ownership. Like the meandering waters of the Missouri River, the project's name kept changing during Reclamation's tenure. In 1906 the government authorized the entire operation as the Williston Project. Six years later, in 1912, they renamed the project the North Dakota Pumping Project. In 1922, many years after the government abandoned the Buford-Trenton unit, the project's name reverted to Williston. Adding to the confusion, Reclamation documents occasionally refer to the enterprise as the Missouri River Pumping Project.³

Bottom lands along the Little Muddy Valley are very flat, and not as adaptable to irrigation as the nearby bench lands. Knolls and depressions scar the bench lands, making it impossible to store and drain water. Blue joint and other native grasses carpeted the valley, before farmers planted acres of wheat. The Missouri River bottoms are split between an upper and lower terrace. The lower terrace lacks vegetation except thick grass. The surface of the upper terrace is smooth with a heavy loam or clay well suited to irrigation. The region's geological development influenced Reclamation's decision to investigate Williston. Before the ice age, this section of the continent evolved over time from an inland sea to marshland. Later deposits of shale and sandstone covered the decayed vegetation forming veins of lignite coal. Records since the late nineteenth century indicate the region averages thirteen inches of moisture each year. The growing season is short, but the days are long. Average temperatures from highs of 99 degrees to lows of -37 reflect dry summers and bitter winters.⁴

Historical Setting

The stories of the Sioux nation, Lewis and Clark, and Fort Buford dominate the early history of

3. George Wharton James, *Reclaiming the Arid West: The Story of the United States Reclamation Service* (New York: Dodd, Mead and Company, 1917), 263-4; Robert Fletcher, "U.S. Irrigation Work in the Northwest," *Engineering News*, (November 14, 1912), 897-8.

4. James, *Reclaiming the Arid West*, 265-6; U.S., Department of Interior, United States Reclamation Service, *Ninth Annual Report of the Reclamation Service, 1909-10* (Washington, D.C.: United States Government Printing Office, 1910), 227.

northwest North Dakota, but the birth of Williston came later in 1887. James J. Hill, the flamboyant president of the Great Northern Railway honored his friend, Willis D. James, director of the St. Paul, Minneapolis and Manitoba Railway by renaming Sidetrack No. 25, Williston. Across from Sidetrack No. 25 on the south bank of the Missouri River, a collection of "sporting houses and saloons" clustered together to form the town of Little Muddy. When the residents heard the Great Northern Railway was coming through, Little Muddy's business leaders saw a bonanza headed in their direction. However, labor gangs "laid the track in one day, crossing the prairie and going out of sight the same day." Hill's decision to replace a railroad marker with a town redirected the future of this region.⁵

Reclamation traced local irrigation's beginnings for publication in a *Fact Finders* report on the Williston Project. The USRS credits a man named Rounsaville with the idea of irrigating the Little Muddy valley. Rounsaville formed a dam out of brush and rock, and dug a canal to water his herd of cattle. His plan was feasible from an engineering standpoint, but without homesteaders interested in sharing expenses, Rounsaville's irrigation project eventually withered and died.⁶

In 1903 Franklin E. Weymouth and John Kerr led the USRS's first survey into northwest North Dakota to study the likelihood of building gravity dams. The duo's findings established that the topography of the Little Muddy valley could not support construction and maintenance of a storage reservoir. Concurrently, the United States Geological Survey conducted tests on the quality and depth of the region's lignite coal. Those surveys opened the possibility of irrigation through pumping. In September 1904, Percival Churchill led the first examination of pumping plant sites around Williston. Churchill's team walked the irrigable lands within reach of pump lifts of less than 80 to 100 feet. In 1905, another field party arrived to gather more detailed information for cost estimates.⁷

More than any other state under the Reclamation Act, North Dakota offered the greatest support to the young Reclamation Service. Irrigation fever motivated local and state officials to pressure the federal government to develop one or two irrigation projects in the state. The state's newspapers "teemed with flowery articles on the wonderful prospects . . . legislators had newspaper

5. *The Wonder of Williams*, Vol. 1, 45.

6. U.S., Department of Interior, Bureau of Reclamation, *Fact Finders File, Williston Project*, Vol. 3, (Washington, D.C.: 1924), 2.

7. *Ibid.*, B-1, B-5.

controversies to who was entitled to the credit for securing the North Dakota projects." By 1905, through recent settlement of its public land, North Dakota quickly became the largest contributor to the Reclamation fund. The Third Irrigation Congress held in Bismarck in January 1905 fanned a greater demand for water. The irrigation congress gave birth to the popular assumption that construction charges for a pumping project at Williston would be \$25 per acre. A letter addressed to the congress from Reclamation Director Frederick H. Newell estimated potential costs at \$38 an acre. Other than Newell's letter, there is no record of any figure submitted to North Dakota irrigators during this period.⁸

Project Authorization

By mid-1905, plans and estimates for the Williston Project were in place. In May 1905 the people of Williston incorporated into a water users' association. Their first step was to circulate a petition to have the federal government investigate the cost of irrigating the district. On September 22, a board of engineers made up of Arthur Powell Davis, Hiram N. Savage, Orville H. Ensign, Henry A. Storrs, and Percival M. Churchill recommended gradual construction of any future pumping projects along the Missouri. The Service believed they could supply water for 12,238 acres—8,189 acres in the Williston unit and 4,049 under Buford-Trenton. By January 1906, the water users' association subscribed 14,240 acres to the project. On January 23, Secretary of the Interior Ethan A. Hitchcock approved the recommendations of the board of engineers and authorized construction. Reclamation mandated the irrigation season at eighty days, from June 1 to August 15, and organized construction forces. Additional surveys and advertisements for contracts occupied the first six months of 1906.⁹

Construction History

On the banks of the Missouri River, dams and reservoirs did not play a featured role. The Williston Project boasted a central, steam-turbine power plant to generate electricity; three outlying pumping stations; a settling basin; five canal systems under separate lifts, and a coal mine to run the entire operation.¹⁰

During August 1906, Reclamation opened to bidding process for the contract to install

8. Ibid., 2, 7, B-12.

9. "Annual Project History, Williston Project," Vol. 2, 1910, 2-4, in RG 115, Project Histories 1909-1926.

10. "Annual Project History, Williston Project," Vol. 13, 1914, 2, in RG 115, Project Histories 1909-1926.

machinery, build the powerhouse, and dig the canals. General Electric's bid of \$41,242 beat out nine other companies to win the right to provide two steam turbines. D'Olier Engineering Co. of Philadelphia installed boilers and steam and motor-driven pumping units. The government received an informal proposal from J. H. Donohue of St. Paul, Minnesota to build the 90-foot by 135-foot main power station at an estimated cost of \$13,886. Work began September 17 and ended in early 1907. Henry C. Delaney of Williston won an uncontested canal and structures contract. The engineer's board estimated the cost for digging canals at \$63,217 and balked at Delaney's bid of \$81,867. Eventually, they relented, conceding that the USRS probably could not do the job any cheaper with force account labor. At the same time as Reclamation awarded his contract on the Williston Project, Delaney held a large contract on the Lower Yellowstone Project that required more of his attention. Delaney divided his "inadequate force" between both camps. This strategy spelled delays at both sites and caused "considerable annoyance to the Service." Work on the canal began September 27, 1906, and concluded September 20, 1908. The canal's final cost of \$88,351 dwarfed both Delaney and Reclamation's estimates.¹¹

On the rolling deck of a moored barge rested the success of the Williston Project. A pumping-barge had to withstand the river's ten to fifteen feet fluctuations, and runoff that would cut into the riverbanks "as if they were made of soft sugar." Floating machinery on a barge also offered little security, as a pumping-barge had to withstand the river's ten to fifteen foot fluctuations. In 1906 F. A. Nolan of St. Paul, Minnesota, presented a bid of \$1,571.59 to build the project's most recognizable feature. Nolan's firm shipped the barge's lumber from Minneapolis on December 31, 1906, and the materials finally arrived in Williston on March 3, 1907. During shipment, some lumber was lost, forcing the builders to construct a barge smaller than the one in the blueprints. On completion, the barge's builders moored the 24-foot by 60-foot barge in the river a thousand feet southeast of the Great Northern Railway station.¹²

The barge's machinery included three motor-driven, single stage centrifugal pumps, each with a

11. *Fact Finders, Williston Project*, B-5-B-7; "Annual Project History, Williston Project," Vol. 1, 1909, 27, in RG 115, Project Histories 1909-1926.

12. "Annual Project History, Williston Project," Vol. 1, 1909, 86-7, 124, specification S-3024, in RG 115, Project Histories 1909-1926.

capacity of 30 cubic feet per second (cfs) running under a pumping lift of 30 feet. The pumps were directly connected by a 2,200 volt copper transmission line to a Westinghouse 450 rpm induction motor inside the power house. River water was forced through 24-inch pipes with a suction lift of four feet. Flexible jointed pipes measuring 180 to 220 feet in length connected the barge to the stilling basin on shore. The pipes ran under 10 to 26 feet of pressure depending on the stage of the river. By adjusting the flexible pipes, workers could moor the barge closer to the bank, or well out into the channel, as conditions warranted. Another barge, measuring 72 feet long, 25 feet wide, and four feet six inches deep served the Buford-Trenton Unit. During construction, Reclamation faced employing unskilled force account labor, difficulties in finding building materials, the river's erratic nature, and a cyclone that flattened the Buford barge soon after its launch.¹³

Water pumped from the river passed to the settling basin on shore that removed the heavy silt load of the Missouri River. The basin measured 75 by 375 feet and seven feet deep. Silt settled in the basin before water dropped over a weir into a 270-foot long double-barreled reinforced 10-inch concrete siphon. The water then flowed underneath the Great Northern Railway tracks into the Main Canal. During the first season of irrigation, 1908, 6,236 cubic yards of silt collected in the basin. In August, an observer described the pool of silt resembling "the consistency of thick molasses." During the first six years of operation, the basin captured approximately 16,000 cubic yards of silt. The main canal had an initial capacity of 90 cfs and extended in a northerly direction up the Little Muddy Valley before ending at an equalizing reservoir at the power house.¹⁴

Work on the power house began September 17, 1906, with the first pieces of machinery arriving in April 1907. The plant provided electricity for irrigation during June, July, and August. In 1912 the plant became the supplier of light and power for the city of Williston year round. Williston's engine room featured one 700-horsepower turbine and two 400-h.p. turbines, each driving electric generators and producing three-phase alternating current at 2,200 volts, eight 200-h.p. Equipment in the power house also included Stirling water-tube boilers, three steam turbines driving electric

13. *Reclaiming the Arid West*, 267; "Annual Project History, Williston Project," Vol. 1, 1909, 86-7, 124, specification S-3024, in RG 115, Project Histories 1909-1926.

14. "Annual Project History, Williston Project," Vol. 1, 1909, 141; "Annual Project History, Williston Project," Vol. 13, 1914, 3, 9, in RG 115, Project Histories 1909-1926.

generators, and two steam turbines driving pumps, with steam, electric auxiliaries and condensing equipment. The river water used in the boilers required softening. Adding hydrated lime, or soda ash, neutralized the alkali in the water and eliminated scale in the tubes and drums.¹⁵

In the fall of 1907, the Missouri River eroded away yards of the river banks surrounding Williston. Anxious not to go over budget, Reclamation persuaded the U.S. Army Engineers to spend \$10,000 to build a mat of willows and place riprap along the river. Heavy stakes driven into the banks and supporting wires held the six-inch thick mat to the shore. Crews placed about 6,000 feet of revetment by early 1910.¹⁶

At the powerhouse, two sets of steam driven turbines operated centrifugal pumps lifting water 51 feet into "E" canal. The "E" Canal served the northern reaches of the project. From the main canal, midway between the river and the power plant, pumping station No. 2 served the central lands under the second lift of the project. Electrically driven pumps raised 35 second-feet of water 28 feet into "B" canal. From "B" canal, 20 second-feet of water rose an additional 28 feet into the "C" canal. A mile west at the end of Canal "F", sat another electrically operated station, No. 4. The station served the project's west side under the third lift of the project. The six pumps in the three pumping stations had a combined capacity of 64,300 gallons per minute.¹⁷

All this machinery depended on coal to run. The lignite deposits covered an area of three square miles and would last more than a thousand years. The government mine sat on top of a nine-foot vein of coal, a distance of five-hundred yards from the power house. A crew of five miners loaded the coal into mule-driven cars, four cars at a time. The coal then passed through a crusher, reducing the lignite into four-inch lumps. Electricity conveyed and distributed the coal into bunkers in front of the boilers. Men shoveled the coal twice, once inside the mine and then into the boiler furnaces. The Dutch oven design of the boilers' semi-gas furnace burned lignite more economically than other contemporary furnaces. In the summer irrigation season, the furnaces burned a hundred tons of coal

15. S. L. Sinclair, "Power Plant, North Dakota Pumping Plant," *Reclamation Record*, 6 (January 1915): 31-2.

16. "Annual Project History, Williston Project," Vol. 1, 1909, 86, 115, in RG 115, Project Histories 1909-1926.

17. *Reclaiming the Arid West*, 268.

each day.¹⁸

The Buford-Trenton unit duplicated Williston, but on a smaller scale. Buford-Trenton irrigated the surrounding bench lands with water pumped from a barge into a settling-basin 30 feet above the river, and a lateral system. A permanent pumping-station then lifted the water into a canal, 50 feet above the settling-basin. The Buford station ran eight pumps with a capacity of 82,800 gallons per minute. A 28.3-mile long transmission line from the main power house delivered 2,200 volts of electricity to operate the pumps.¹⁹

Employee quarters included a bunkhouse, mess hall providing meals at 25 cents, and hot and cold showers. Despite these accommodations, Reclamation lamented that men were scarce and inefficient. Common laborers made 20 to 30 cents an hour in 1908-09. After two years of construction, the project first delivered water in the spring of 1908. For the upcoming irrigation season, Reclamation hired forty-five men to work in the plant and mine, run the barges, and oversee the canals.²⁰

Post-Construction History

The first irrigation season of 1908 brought rising water, irrigators' indifference, and a dark portent for the project's future. In June, the spring runoff carried trees four feet in diameter and 40 feet long into the Williston's barge's bow. Their force snapped the mooring lines, leaving the barge clinging to the shore by its discharge pipes. Smaller chunks beneath the water's surface clogged the unscreened suction pipes and pump runners, requiring a complete cleaning of the centrifugal pumps. Project workers disconnected the barge for four days, mooring it closer to the bank to avoid additional damage.²¹

In the summer of 1908, the debate over repayment overshadowed the disaster striking the barge. Earlier in 1908 a public notice announced that water users would have to pay a \$38 charge for

18. *Reclamation Record*, 6 (January 1915), 32; "Annual Project History, Missouri River Pumping Project," Vol. 10, 1911, 127, in RG 115, Project Histories 1909-1926.

19. U.S., Department of Interior, United States Reclamation Service, "Annual Project History, "North Dakota Pumping Project," Vol. 11, 1912, 4; U.S., Department of the Interior, United States Reclamation Service, "North Dakota Pumping Project, Power and Pumping Systems," (1921), 5, in RG 115, Project Histories 1909-1926; *Reclaiming the Arid West*, 268.

20. Sinclair, "Power Plant, North Dakota Pumping Plant," 32; *Reclamation Record*, 1 (May 1908), 38; "Annual Project History, Williston Project," Vol. 1, 1909, 84, in RG 115, Project Histories 1909-1926.

21. *Reclaiming the Arid West*, 269-70.

construction and water use. The notice destroyed the popular perception that construction charges would total \$25. Better than average rainfall during the summers of 1908 and 1909 also convinced many settlers not to invest the time or money into preparing their lands for irrigation. The water users' association wrote to their congressmen and Secretary of Interior James R. Garfield, pleading ignorance and limited means, and asking for deferment of charges until the second year. The situation led to an Army Board of Engineers visit in August 1910. The board advising the consulting engineer to the secretary of the interior, Brig. Gen. William L. Marshall, concluded that "they (the USRS) should condemn and abandon project as not economically feasible from any point of view."²²

After the Army's tour, the Buford-Trenton unit closed in 1911. Employing a touch of sarcasm, future Williston Project Manager William S. Arthur remembered that the chief activities of Buford-Trenton water users "were appeals of all kinds of relief which fell little short of asking that the works be given to them." To avoid a similar situation at Williston, a May 13, 1911 ordered building charges set aside for three years. Reclamation did charge \$1.50 per acre of irrigable land and \$1 per acre foot of water to users subject to the public notice of 1908. These conditions lasted for two-and-a-half years.²³

If farmers remained ambivalent about the project, the city of Williston found they could not live without it. On October 16, 1912, Reclamation signed a commercial power contract with the city of Williston, providing electricity for the city and a reason to continue the project. To encourage agricultural production, an order of March 1914 permitted all settlers and water right applicants to secure water at \$1 per irrigable acre for the upcoming irrigation season. Users paid fifty cents on delivery to the government with the balance due on December 1, 1914. However, that year only 1,056 acres received water.²⁴

As Williston sputtered, Congress passed the Reclamation Extension Act in August 1914 suspending operations on the Williston Project. The act required repayment of O&M costs within one year from the previous 12 months. The head of the Williston Irrigation District, Erich Kahler, wrote

22. "Annual Project History, Williston Project," Vol. 1, 1909, 121, in RG 115, Project Histories 1909-1926; William Marshall to Secretary of Interior Franklin Lane, 26 March 1919, in RG 115, Records of the Bureau of Reclamation, General Administration and Project Records, 1902-1919, Box 1491.

23. "Annual Project History, North Dakota Pumping Project," Vol. 19, 1920, 5, in RG 115, Project Histories 1909-1926.

24. "Annual Project History, Williston Project," Vol. 13, 1914, 1, in RG 115, Project Histories 1909-1926.

that irrigators could not pay under those conditions. The government's response was to shut down operations from 1915 to 1918. Reclamation, however, continued to run the power plant and mine coal to produce electricity for the city of Williston.²⁵

Drought, and a group of farmers seeking a second chance, convinced the state legislature to pass an irrigation district law in 1917. Water users finally understood that operations at Williston would never resume until they agreed to assume financial responsibility. The project landowners agreed to organize into a new Williston Water Users Association, entering into a contract under the government's terms allowing resumption of operations. The North Dakotans' activity did not move Brig. Gen. Marshall. In 1919 he recommended to Secretary Lane that the Reclamation fund "should not be further imperiled at Williston." Marshall believed giving Williston a second chance was like accepting "an unsecured note of a moneyless man."²⁶

Under the agreement, the first five years of operations and maintenance repayment were graduated annually. The arrangement stated users would pay a \$1 an acre for water before the first anniversary date of March 1, 1920, on up to \$4.50 an acre by March 1923. Starting in 1925, water users would pay the construction bill of \$290,803.74. Over twenty years, that amount divided among subscribers came to \$38 per acre of irrigable land. Secretary of the Interior Lane approved the contract on June 3, 1919. According to project irrigators, Lane's signature came too late to get a good crop in for that first season.²⁷

The project's machinery and features aged rapidly from four years of neglect. The pumping plant machinery needed replacing and the settling basin and canals were choked with mud and weeds. The barge floated on rotted timbers and lighting struck the machinery on board. A U.S. Army study estimated the life of an average pumping barge at seven years. By 1923 Reclamation's barge was a weather-beaten 16 years old. That year the USRS gave up on the pumping barge and installed a new

25. *Fact Finders File*, 34.

26. "Annual Project History, North Dakota Pumping Project," Vol. 18, 1919, 118, in RG 115, Project Histories 1909-1926; Brigadier General William L. Marshall to Secretary of Interior Franklin K. Lane, 26 March 1919, in RG 115, General Correspondence File, Box 1491.

27. Andrew Weiss, *Williston Project, Special Report*, (October 2, 1924), 2; Erich Kather to Secretary of Interior Albert Fall, 2 May 1922, in RG 115, General Correspondence File, Box 1491; "Annual Project History, North Dakota Pumping Project," Vol. 18, 1919, 118, in RG 115, Project Histories 1909-1926.

\$30,000 permanent pumping station. The government believed it would save \$1,200 each year in launching and docking alone. Other features contemplated included additional pumping stations and lateral systems for the east and west bottoms near Williston, enlargement of the power station, and extension of the transmission line.²⁸

Settlement of the Project Lands

Before Reclamation found its way to North Dakota, one wag described the state as "A piece of land entirely surrounded by a mortgage." At the time of project authorization, 95 percent of the state's lands were in private ownership and 50 percent of Williston's irrigable acreage belonged to people living outside North Dakota. People still came to North Dakota and the town of Williston bloomed into a city in less than 15 years. In the year of the project's authorization, 1906, the community held 611 people. By the 1920 census, a small city of 4,124 thrived on the north bank of the Missouri River.²⁹

Project land owners either planted grain, grazed cattle, or left their acreage uncultivated. Reclamation officials tried to wean grain producers away from a one-crop system and encourage absentee owners to sell their land. This atmosphere discouraged new agricultural settlement and burdened established farmers with mounting maintenance costs. Established farmers felt their only recourse was louder appeals to the federal government.

Beginning in the late teens into the early 1920s, the "greatest general farming and industrial depression North Dakota has ever known" descended on the state. The drought affected both the countryside and main street, as banks withdrew credit, schools closed, and counties and towns reduced services and postponed payments. 1918 saw the largest exodus of people leaving North Dakota in the state's history. Those sick of farming "left their houses unoccupied, hitched the cow and perhaps an extra team, to a wagon containing the remaining personal effects and headed east or south in their 'prairie schooners' to make a new start." When it seemed things could not get any worse, the worldwide influenza epidemic touched isolated Williston. In the fall of 1918, flu killed two Reclamation

28. U.S., Department of Interior, Bureau of Reclamation, *Twenty-third Annual Report of the Reclamation Service, 1923-24* (Washington, D.C.:United States Government Printing Office, 1924), 67; *Fact Finders File*, B-12.

29. *Reclamation Record*, 12 (June 1921), 251; "Annual Project History, Williston Project," Vol. 13, 1914, 48, in RG 115, Project Histories 1909-1926.

employees, the power plant manager and the smokestack maintenance man.³⁰

Williston's revival coincided with an inflation cycle tied to the end of World War I. Cost of living mounted over the next three years, reaching a peak in 1921, and the farmers unpaid charges began to build.

In the midst of nature's wrath and economic disaster, the secretary of the interior added a new controversy. In August 1919 Secretary of the Interior Franklin K. Lane agreed to unionize workers at the federally-owned mine. Lane decided against the wishes of Project Manager Arthur, the water users' association, and the community. The contract with the United Mine Workers of America (UMW) resulted in day-men rates 150 per cent higher and tonnage rates 100 percent higher than in 1916. The government's own *Fact Finders* report barely could conceal its disbelief, calling the secretary's decision "a thing almost without precedent" in federal relations with labor. The losers from these negotiations were the water users, as the contract with the union increased their operation and maintenance costs.³¹

In the midst of this misfortune, one man held onto his resolve to make Williston work. Described by *Reclamation Record* as "the real optimist of the Muddy Valley," Project Manager William S. Arthur started as a chief clerk and fiscal agent in the Williston office in 1910. After promotion to project manager, Arthur supervised operations at the barge and mine, and dealt with the water users' association and his supervisors. Occasionally, Arthur used a hoe and shovel to show dry-land farmers how to plant, weed, and irrigate sugar beets. In 1923 Arthur worked from 4:00 a.m. until it was time to open his office, and went back into the fields after closing until dark. Trying to induce growers, Arthur offered \$25 out of his own pocket to the farmer with the greatest yield of beets at the end of the season.³²

Sugar beets were the project's last hope. Under Arthur's supervision, the 1923 test crop produced excellent beets. Working against the growers was the 350-mile distance between Williston

30. *Fact Finders File*, 20, 29, 36; Valentine Delaney to Secretary of Interior Franklin K. Lane, 20 November 1914, in RG 115, Entry 3, General Administration and Project Records North Dakota Pumping Project, Box 721; "Annual Project History, North Dakota Pumping Project," Vol. 17, 1918, 96, 118, in RG 115, Project Histories 1909-1926.

31. *Fact Finders File*, 31.

32. Miles Cannon to David W. Davis, 23 July 1923, in RG 115 General Correspondence File, Box 1491.

and the nearest sugar beet factory and the prohibitive freight rate. The following season irrigators prepared 500 acres of land for beets, built houses for laborers, and persuaded the Great Northern Railway to offer a reduced shipping tariff. A representative of a sugar company visited and agreed to furnish the beet seed, ship in labor, and assume \$1.10 per ton of the freight. This left \$1.45 per ton for the beet grower to pay. However, sugar prices were high and the return seemed promising. That summer, growers dealt with labor shortages, insufficient equipment, and an infestation of web worms. At seasons' end, they produced 443 acres of beets, yielding about \$30,000. Ironically, one of the best years for some of Williston's growers would be one of the last.³³

Uses of Project Water

It took a couple of seasons for one Reclamation commentator to realize that Williston's farmers did not understand the complexities of irrigation. Many still planted grain without diversification of crops. During both seasons, in June, all farmers wanted water at the same time and at a rate eight times faster than what the system could provide.³⁴

By 1923 there was some soul searching among Reclamation's leadership and the water users' association over how Williston could have been a success. Both parties agreed that Williston failed for three reasons: private parties outside of the state held much of the surrounding irrigable land; irrigation depended on expensive pumping operations, a period of better than average rainfall watered western North Dakota as the project was attempting to find its legs.³⁵

Others refused to blame the weather or bad luck for Williston's misfortune. Watching Reclamation's efforts go nowhere, William S. Arthur grew increasingly bitter toward the local farmers. He wished that "[f]ifty farmers who are not afraid to work would put the project permanently on its feet." He recalled that on his arrival in 1910, "When the project opened country school houses—crude and poorly equipped—were the center of all social activities. The town of Williston had very little more to offer." By the mid-20s, Arthur mused, "If the project lands were farther removed from the town,

33. "Annual Project History, Williston Project," Vol. 24, 1925, 36-40, in RG 115, Project Histories 1909-1926.

34. "Annual Project History, Williston Project," Vol. 1, 1909, 125, in RG 115, Project Histories 1909-1926.

35. Erich Kather to Secretary of Interior Albert B. Fall, 2 May 1922, in RG 115, General Correspondence File, Box 1491; "Annual Project History, North Dakota Pumping Project," Vol. 22, 1923, 21, in RG 115, Project Histories 1909-1926.

there would be less superfluous diversion and more accomplishment on the farms."³⁶

In 1924 the Committee of Special Advisers on Reclamation, better known as the Fact Finders' Committee, examined the history and potential of the Williston Project and recommended against future operation. The committee also suggested that Reclamation appraise the project's current value, put all machinery up for bid, and charge the losses to the Reclamation fund. The Act of May 26, 1926, (44 Stat. 653) authorized cancellation of all water-right charges, wiping the slate clean of the water users obligations. In closing the books on Williston, the Reclamation fund charged off a loss of \$409,094.69. In January of 1926, the government sold the headquarters property and the mine to local interests.³⁷

Reclamation returned to Buford-Trenton in the 1940s to construct a canal system. During the latter half of the 20th century, the petroleum industry flocked to the region in search of oil from the Williston Basin. (The story of the Bureau of Reclamation's later involvement in this region is in the chapter on the Buford-Trenton Project).

Conclusion

Few know that Reclamation once tried to provide irrigation with barges and coal mines instead dams and canals. If finances and fortune had been kinder to the people of Williston and the Reclamation Service, the story of Federal irrigation in the West might have had a different subplot. The Williston/North Dakota Pumping Project is best remembered as an experiment that confirmed Reclamation's trust in the stability of dams and canals over uncertain methods of delivering water.

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