

Fort Sumner Project

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Fort Sumner Project

Project Location

The Fort Sumner Project lands are located along the east bank of the Pecos River immediately south of the town of Fort Sumner, New Mexico, in De Baca County. Fort Sumner resides in the east-central part of the state, 160 miles southeast of Albuquerque, New Mexico, and approximately the same distance southwest of Amarillo, Texas. The principal source of water for project lands comes from the Pecos River. At Fort Sumner the Pecos River has a narrow valley floor with broad benches or rolling hills rising up from its banks. Most of the irrigated lands are located on the floor of the valley between Truchas Creek on the North, and Taiban Creek to the South. Near Santa Rosa, New Mexico, several springs contribute to the River's flow. The project lands receive water from the springs which pass through Lake Sumner and Sumner Dam. (The Bureau of Reclamation originally built Sumner Dam and Lake Sumner for the Carlsbad Project in 1937. Reclamation first named the dam and lake the Alamogordo Dam and Reservoir.) The elevation of the project is approximately 4,000 feet above sea level. The Fort Sumner area has short winters which include extreme cold periods of short duration. The summers are long and hot. The average frost-free period lasts the 197 days from April 1 - October 25; however there is always a small chance for frosts into May. In the summer, sunshine averages equal seven and one-half hours. Rainfall is insignificant and crop production requires irrigation. The seasonal rainfall average is close to thirteen inches, but precipitation is erratic and departures from the average are very common.¹

1. Water and Power Resources Service, *Project Data*, (Denver: Government Printing Office, 1981), 471; Carol Hitt, "Fortifying Fort Sumner," *The Reclamation Era*, April 1950, 74; Denver, Colorado, National Archives and Records Administration (NARA), Records of the Bureau of Reclamation, Record Group 115, "Report on the Fort Sumner Investigation," 1929, 29; Department of the Interior, Bureau of Reclamation, "Project Histories: Fort Sumner Project," 1949-50. 5 (hereafter referred to as "Project History" followed by year and page.).

Prehistoric Setting

More than 4000 years ago inhabitants of the arid Southwest relied upon their knowledge of the area to help them locate sources of food and water. When water was not near their food supply they excavated wells to compensate for lack of surface water. As time advanced, and as agriculture continued to develop, the Southwest's occupants became less nomadic and began establishing semi-permanent and permanent communities. Such settlements required steadier supplies of water than their wells gave them.²

The Pecos River provided the people who settled in its vicinity, many of whom came from the west and were of Jemez Indian stock, with a moderately reliable water source with which to irrigate small plots of land. Their principle meat supplies came from deer, turkey, and bison. They cultivated maize, various types of greens, and squash, on their irrigated plots. When the Spanish rode into the Pecos Valley in the 1500s they found thriving, organized communities of Indians who hunted, farmed, and traded goods with other Pueblos and Plains Indians.³

Historic Setting

Recorded history of the Pecos River begins in the year 1540, when the Spanish Conquistador, Francisco Vasquez de Coronado, visited the river valley and reported the existence of several Indian villages.⁴ A legal Indian trading post was established in the area in 1851. Eleven years later, in 1862, Captain Joseph Updegraff of the U.S. Fifth Infantry, chose the site of the trading post as the site for a military post designated to monitor and control Indian activity in the area. During the Civil War, the government stationed Federal troops at the military post named Fort Sumner. Thus, it was 1863 which marked the beginning of the

2. Alfonso Ortiz, ed., *Southwest*, vol. 9, *Handbook of North American Indians*, ed. William C. Strutewant (Washington: Smithsonian Institution, 1979), 51, 52.

3. *Ibid.*, 430, 432, 434.

4. "Report on the Fort Sumner Investigation," 1929, 3.

irrigation era for the arid area of Fort Sumner.⁵ The area's first organized irrigation was again tended by Indians. However, this time it was done by Navajo Indians held at the Fort as prisoners by Kit Carson's troops. The government's plan for the Fort involved having the Indians work the land in order to make the Fort self supporting by growing food for the soldiers, prisoners, and post animals. Troop and Indian labor developed and maintained an irrigation system to water the 2,000 acres of land on which they raised their crops. The system, although successful only on a very limited basis, was maintained for five years, until the post was abandoned by the military and sold. The purchasers of the reservation are said to have used the irrigation canal for several years before they too left the area abandoned.⁶

Frank A. Manzanares and John F. Marlman made the first appropriation claims on the water from this system on March 18, 1903. In accordance with the Territorial laws of New Mexico, Manzanares and Marlman made this appropriation by having a survey conducted of the irrigation system's canal and the lands lying under it. They then filed that information together with a statement of the claims with the County Clerk of Guadalupe County in Santa Rosa, New Mexico. The proposed irrigation land was the main part of the abandoned military reservation east of the Pecos River, and the lands lying south thereof. They claimed 55 second feet. They then organized the Fort Sumner Land and Canal Company, and transferred their appropriation to the company in exchange for capital stock.

However, Manzanares and Marlman could not finance the construction of a viable irrigation system for their lands, and in 1905 they interested D. J. McCanne, George Temple, and E. L. Alexander of Denver, Colorado, in the venture. McCanne, Temple, and Alexander

5. Robert W. Frazer. *Forts of the West*. (Norman: University of Oklahoma Press, 1965), 104.

6. "Report on the Fort Sumner Investigation," 1929, 3; Water and Power Resources, *Project Data*, 473; Hitt, "Fortifying," 74.

purchased most of the proposed irrigation lands, and all of the Fort Sumner Land and Canal Company's stock; and with these, promptly organized the Fort Sumner Land and Development Company. These three gentlemen financed the first part of the project out of their own pockets. They soon discovered, however, that they could not sell the land except on long terms, and thus, due to lack of funds, were obligated to bond the property in order to continue the construction and development of the property.⁷

At the same time that the Fort Sumner Land and Development Company was trying to develop the area around the former Fort Sumner military post, the actual town of Fort Sumner was being built. In 1906, a railroad from Wichita, Kansas to Belen, New Mexico, called the Belen Cut-off, was constructed as far west as the Pecos River. Directly north of Truchas Creek, on the east bank of the river, in order to house the construction workers building the bridge over the Pecos, the village of Sunnyside was built. Once the workers completed construction on the bridge, they built a train station on the South side of Truchas Creek. The station and the surrounding area was named Fort Sumner.⁸

The Fort Sumner Land and Development Company finished construction of the dam, the first section of the canal, and the headgates by December, 1906. They began delivering water to all land ready to receive it by the early part of 1907. On October 1, 1908, a \$240,000 bond issue was authorized, \$120,000, of which, was issued. Shortly thereafter, the Fort Sumner Land and Development Company ran into more financial trouble the remaining bonds were sold. Porter, Fishback and Company of Chicago purchased these bonds in January, 1909. The securities

7. Although the source from which this information was taken says that Manzanares and Marlman made their appropriation with the State Laws of New Mexico in 1903, New Mexico did not become a state until 1912; thus, at the time of their appropriation, these men would have been following the laws of the Territory of New Mexico; Denver, Colorado, NARA, RG115, "Report on the Water Supply for and the Cost of Rehabilitation of the Irrigation System for Fort Sumner Irrigation District, De Baca County, New Mexico," May 1919, 2.

8. "Report on the Fort Sumner Investigation," 1929, 3.

consisted of a lien on all physical property and a first mortgages on 3,000 acres at a rate of \$50 per acre. Five years later, in 1914, the bond mortgages were foreclosed and the securities sold. Soon after, Charles Fishback took possession of the diversion works. However, the project also proved a drain on Fishback's financial resources; he could not afford the project's maintenance and rehabilitation costs. Thus, Fishback sold the property to the Fort Sumner Irrigation District for a grand total of \$100.⁹

The Fort Sumner Irrigation District was organized on the fifth of September in 1918 for the purpose of acquiring the plant owned by the Fort Sumner Land and Canal Company, or its successors. In 1919, when Fishback sold the property, the District became possessor of the diversion works through purchase. Shortly thereafter, they took over the physical plant and began operational control of the diversion system.¹⁰ The Fort Sumner Irrigation District then issued bonds amounting to \$40,000. When no bids for the bonds were received, however, local interests purchased 261 bonds at the rate of \$100 each. They used the funds to complete a concrete diversion dam. The first unit of this dam was undermined and destroyed soon after completion, and the District attempted to continue the project with a brush diversion structure.¹¹

The diversion works continued to plague the Irrigation District with numerous problems which resulted in reduced crop yields. In 1930, to help District farmers increase crop production, the District received a \$10,000 grant from the State of New Mexico to initiate the building of a drainage system, estimated to cost \$40,000. The State gave them an additional \$3,500 in 1931 for the same project. However, the national depression and wide-spread drought in the early 1930s gave the water users even more problems.¹² It was during this time that the

9. "Report on Water Supply," May 1919. 2; Hitt, "Fortifying," 74.

10. "Report on Water Supply," May 1919, 4.

11. "Project History," 1949-50, 6; Hitt, "Fortifying," 74.

12. "Project History," 1949-50, 6.

Fort Sumner Irrigation District began asking the Bureau of Reclamation to step in to aid with rehabilitation of the diversion works. The water users' inability to bear the financial burden of repayment to Reclamation, however, hindered project approval. Meanwhile the District's diversion works leaked and had problems with distribution and flood control almost continuously.¹³

In 1934, the District built a new concrete dam. A section of the dam washed out during flooding in 1941 and required repair. In 1943, a flood again destroyed part of the newly repaired dam, and the District replaced the missing section with an earthen dike, also extremely vulnerable to floods and, thus, unreliable. That same year, a turbine pump designed to lift water to the irrigation works' High Line Canal failed, causing deterioration in the distribution and drainage system. These malfunctions resulted in a great loss of water, poor distribution or irrigation releases, and raised operation costs. In addition, drainage was inadequate.¹⁴

By 1943, the project's need for rehabilitation and the constant financial drain on the District made further construction through private funds almost impossible; however, the District's financial situation improved enough to afford a repayment schedule. It was then that the water users near Fort Sumner again sought assistance from the Bureau of Reclamation, and that Reclamation began its investigations of the project. Reclamation investigations began in 1943, and approval came at the end of the 1940s.¹⁵

Project Authorization

Reclamation investigations resulted in a plan for rehabilitating the Fort Sumner Irrigation Project which included: building a new diversion dam, rebuilding the main canals, and

13. Hitt, "Fortifying," 74.

14. Hitt, "Fortifying," 74. "Project History," 1949-50, Appendix, 2.

15. Water and Power, *Project Data*, 473.

improving the drainage system. The Secretary of the Interior, Julius A. Krug, approved the plan on March 13, 1947. On July 29, 1949, President Harry S. Truman, approved a congressional act authorizing the Fort Sumner Project under Public Law 192.¹⁶ The estimated cost for the project totaled \$2,464,000. Congress appropriated \$2,492,000 for construction of the project works, and \$72,000 of General Investigation funds which made a total of \$2,564,000. Estimates predicted that of the \$2,564,000, that \$100,000 of the construction facilities and equipment would be salvaged and the funds returned to the Treasury. Once authorization and appropriations passed Congress, implementation of the plan moved forward very quickly.

Construction History

Investigations

Reclamation divides project lands into varying class types. Class 1 lands are defined as suitable in every respect for development under irrigation. Class 2 lands are intermediate in quality, and are less desirable because of deficiencies in soils, topography, or drainage. Class 3 lands are considered inferior and comparable to less desirable lands remaining under irrigation. Class 6 lands are the non-arable lands. Reclamation found 6,500 acres of the Fort Sumner Irrigation District's 8,035 acres to be irrigable by those standards. They found the irrigable lands to be alluvial, deep, and very productive under good irrigation management.¹⁷

The original Main Canal served, approximately 5,300 acres with a capacity of 20cfs. The canal system, located on a gently sloping hillside, formed the north and east boundaries of the project. The area encompassed by these boundaries totaled twelve miles long, and at the widest point, just over two miles wide. The lands in the northern part of the area, under the Main Canal,

16. This was done in the eighty-first Congress, first session, 63 Stat. 483. Water and Power, *Project Data*, 473.; "Project History," 1949-50, 2.

17. "Project Report," 1947, 6; "Project Hist 1949-1950," 5; *Ibid.*, Appendix, 8.

had a smooth topography and were well adapted to farming. The land served by the High Line Canal, and those within the southern part of the project had rolling topography and required careful irrigation practices.¹⁸

In 1949, Reclamation investigators reported that the project's high operation costs, inadequate water supplies, and poor drainage resulted from a deteriorated diversion dam and distribution system, and inadequate drainage works. As a result of the constant threat of failure of the project works, farm development suffered. Additionally, the condition of the project and the high wages available from off-farm employment decreased the amount of available farm labor, and consequently reduced the average per acre yield of crops.¹⁹

Reclamation's examination determined that the existing dam needed replacement with an all concrete structure founded on bedrock. The diversion dam was not stable because its concrete sections only rested on piling. After consideration of several alternate sites, Reclamation selected a construction site 150 feet downstream from the existing dam. When Reclamation considered the cost of needed canal construction, they found the selected site to be the most economical for the new Diversion Dam.²⁰

Construction

On October 27, 1949, the Reclamation opened bids for earthworks, concrete lining and structures, from station 3+00 to station 137+65, and for the Main Canal, including a pumping plant at station 136+65. Bids began arriving shortly thereafter; in fact, two bids arrived before Reclamation established the project office. Thus, personnel detailed from the nearby Tucumcari Project, in Tucumcari, New Mexico, conducted the necessary pre-construction survey work, and

18. "Project History," 1949-50, 5.

19. *Ibid.*, Appendix, 8.

20. Denver, Colorado, NARA. RG 115, "Final Construction Report on Fort Sumner Diversion Dam," May 1952, 8.

materials and drainage investigations. Walter B. Bierce, Construction Engineer on the Tucumcari Project, directed all work, and was officially appointed Construction Engineer on the Fort Sumner Project on February 3, 1950.²¹

November 25, 1949, marked the establishment of the Project office. The office remained in operation until August 17, 1951 at the official close of the construction project. Reclamation completed project organization early in 1950 with the employment of additional personnel to handle the increased construction activities. By the end of December 1950, the number of personnel equaled sixty. Maximum project personnel totaled sixty-one during February and March of 1951, with a gradual decrease in numbers extending through April, May, June, and July of 1951. A total of four contracts went out and were completed to rehabilitate the Fort Sumner Irrigation Project.²²

The Pecos Valley Construction Company, from Carlsbad, New Mexico, was granted the first contract, and received notice to proceed on December 9, 1949. The contract called for them to complete construction of the earthwork, concrete lining, and structures, and the Main Canal and pumping plant stations in just over 450 days. They finished construction on March 17, 1951, twelve days after the completion date set forth in their specifications, but this did not seem to cause any problems.²³

On March 2, 1950, Reclamation opened bids for the building of the Fort Sumner Diversion Dam. A. L. Murphy and Nathan A. Moore received notice to proceed on April 26 of that same year. However, construction of the Diversion Dam did not go as smoothly as the other construction work. Work progressed slowly due to the contractor's management, labor, and

21. "Project History," 1949-50, 2, 6.

22. *Ibid.*, 6; "Project History," 1951, 4.

23. "Project History," 1949-50, 2; "Project History," 1951, 5.

financial problems. The main delays resulted directly from the contractor's lack of management, faulty organization, failure to keep sufficient labor to do the necessary work, and lack of proper and well maintained equipment.²⁴ Early in January of 1951, it became apparent that the contractor was not adequately performing his duties, and consequently missing deadlines on the specification requirements for crucial spring water deliveries.²⁵

The Chief Engineer ended the contractor's right to proceed with work on February 2, 1951. A string of appeals from the contractor followed. In the meantime, the bonding company, Surety, Hartford Accident and Indemnity Company elected to complete the work under the same contract. They received authorization to do so on February 6, 1951. The company hired N.M. Soliba Company as their completing contractor. N. M. Soliba Company not only completed the contract, but did so by June 19, 1951, thirty-four days ahead of schedule.²⁶

However, A. L. Murphy and Nathan A. Moore continually appealed the revocation of their notice to proceed. The Chief Engineer received an updated appeal from the original contractor on February 28, 1951, challenging termination of the contract. The Chief engineer forwarded the appeal to Reclamation's Commissioner on April 18 of the same year. The Commissioner sent the appeal to the Solicitor for final acceptance or dismissal on April 27. The Solicitor officially and finally dismissed the appeal on August 22, 1951, sixty-four days after the new contractor completed the work.²⁷

Reclamation opened bids on June 6, 1950, for earthwork and pneumatically applied mortar lining and structures for the High Line Canal, and earthworks and structures, for Main Canal 8.4 lateral, intercepting drains A and B, and the Upper, Middle, and Lower Drains.

24. *Ibid.*; "Final Construct Report on Fort Sumner Diversion Dam," May 1952, 21.

25. "Project History", 1951, 5.

26. *Ibid.*

27. *Ibid.*

Reclamation accepted G. I. Martin's bid, and the contractor received notice to proceed on July 14, 1950. Martin, however, also experienced labor relations difficulties. Labor Relations Officer, C. Warren Stapleton, visited the project in mid July of 1950 due to labor union complaints against the contractor.²⁸ During that month labor organizers attempted to force Martin to sign a contract with labor unions; however, they did not succeed and the contractor proceeded without any labor delays. In fact, the maximum employment for Martin coincided with the non-irrigation season, hence, local farmers and farm workers supplied most of the unskilled labor for Martin's contract.²⁹ The contractor settled all labor disputes by October 16 of the same year.³⁰

Soon after Martin's labor difficulties subsided, unfortunately January 1951, brought very low temperatures. The contractor had made no provision for placing concrete in sub-freezing temperatures, thus, that limited concrete placement to days when the temperatures remained above freezing. However, the weather warmed during the months of February and March, and caused no further delays in construction.³¹ G. I. Martin completed work on April 9, 1951, sixty-four days ahead of schedule.³²

The fourth contract went to Macco Corporation of Paramount, California, on October 27, 1950. That contract called for earthwork, pneumatically applied mortar lining, structures from station 137+65 to the end of the Main Canal, and earthwork and structures for the Main Canal laterals and waste-ways. Work proceeded without hindrance and completed was on April 10, 1951.³³

28. "Project History," 1949-50, 3-4.

29. Denver, Colorado. NARA. RG 115, "Final Construct Report on Lateral System," October 1951, 38.

30. "Project History," 1949-50, 3-4.

31. "Final Construct Report on Lateral System," October 1951, 38.

32. "Project History," 1951, 5.

33. "Project History," 1949-50, 3-4; "Project History," 1951, 5.

At the end of the rehabilitation, the Fort Sumner Irrigation District had a new concrete Diversion Dam; and a revamped Main Canal, High Line Canal, pumping plant, laterals, and drainage system. The completed Diversion Dam was of the concrete gravity weir, overflow, type. Its structural height equaled 50 feet, and its hydraulic height equaled 11 feet. The Weir crest length totaled 650 feet; its crest lay at elevation 4040 feet. The Dam could divert 100 cfs, and the spillway would carry 82,200 cfs.³⁴ The rehabilitated Main Canal began at the Diversion Dam and ended at the wasteway 16 ½ miles southeast of the starting point. The first reach, located between the Dam and the pumping plant was 2 ½ miles long, lined with three-inch concrete. Three and one half miles of the Main Canal, starting at the pumping plant was lined with two-inch pneumatically applied mortar and could handle 100cfs to the Pecos Wasteway. The remaining 10 ⅓ miles of the reach was unlined, and designed to carry up to 80 cfs. The Main Canal delivered water to 5,300 acres of land, and to the High Line Canal.³⁵

The pumping plant lifted water to the High Line Canal. The High Line Canal formed the northeast boundary of the Fort Sumner Irrigation District. It extended nearly 8 ½ miles to the southeast. The High Line Canal could carry 20 cfs. Eight miles of it were lined with 1/5-inch pneumatically applied mortar, while the other two-fifths miles was left unlined. The High Line Canal served 1,200 acres of land.³⁶ The completed pumping plant on the Main Canal was a concrete structure, hydro-turbine, and pump. It lifted 20 cfs 15 ¾ feet to the High Line Canal.³⁷

Finally, the District received improved lateral and drainage systems. The reconstructed lateral system consisted of nine unlined earth laterals receiving water from the Main Canal. They ranged in capacity from five cfs to six cfs, and totaled 6 ¼ miles in length. In addition to

34. Water and Power, *Project Data*, 473-4.

35. Denver, Colorado. NARA. RG 115, "Definite Plan Report," Fort Sumner, 1947, 4.

36. *Ibid.*

37. *Ibid.*

the nine laterals, Reclamation designed four waste-ways with discharge capabilities ranging from 20 cfs to 116 cfs. The drainage system consisted of five drains, Lower, Upper, Middle, and Intercepting Drains A and B. The Capacity of the drains ranged from 10 cfs to 286 cfs. Reclamation rehabilitated and constructed a total of thirteen miles of drains.³⁸

Post-Construction History

In the years following project rehabilitation, there were on-going repairs and alterations to the original project works. Operation and maintenance activities were generally routine, and the project was, for the most part, in good condition; however, the first few years of the project, from 1951-1958, demanded design alterations in order for the diversion works to run smoothly. At the end of the 1951 irrigation season considerable leakage from the discharge pipeline from the pumping plant occurred. Reclamation made repairs prior to the beginning of the 1952 irrigation season, however, frequent breakages in the pneumatically applied mortar canal linings continued to plague the District for the next several years. During 1952 the pneumatically applied canal linings developed breaks, and the hydraulic machinery in the pumping plant needed repairs.³⁹

The second half of the 1950s brought erosion and breakage problems, and saw the process of lining the canals. At this time, storms proved a threat to the High Line and Main Canals by causing erosion which exposed the pipeline to the canals. In an effort to stop this erosion, Reclamation, in cooperation with the District, installed 700 linear feet of jetties to help protect the pipeline. This stopped the erosion problem.⁴⁰ During this period, Reclamation and the Fort Sumner Irrigation District also reduced the amount of cracking and breaking taking

38. *Ibid.*

39. "Project History," 1952-4, 1.

40. "Project History," 1957, 4.

place in the High Line and Main Canals by installing 8,409 feet of expansion joints.⁴¹ In addition to this, Reclamation studied the canal linings and planned experimental modifications for the linings under the Lower-Cost Canal Lining Program in an effort to increase the canals' efficiency.⁴²

Through the 1960s and 1970s other periodic repairs and upgrades were made. Buckling occurred in the Main Canal reaches on the side slopes of the unreinforced concrete lining. The District replaced the broken concrete where necessary. The District also protected numbers of structures from erosion by placing riprap where needed. Seepage problems again occurred in 1961, in an area parallel to the Main Canal on the downhill side, resulting in twenty-five to thirty acres of damaged irrigable land. Also in 1961, all the metalwork on the pumping plant and the Diversion Dam were sand blasted and painted. The coating did not stand up well below the normal operating surface at the Dam. However, it did protect the submerged metalwork of the pumping plant.⁴³

During this period as well, Reclamation furnished unreinforced concrete pipe for the conservation of water for the District's Kennedy, Inman, and Waller laterals. The District furnished the labor, materials, and equipment required for installation. Additionally, part of the Main Canal below the pumping plant, and most of the High Line Canal, were lined with pneumatically applied mortar. This lining broke at frequent intervals after being put into service due to excessive expansion. The District and Reclamation's Lower-Cost Canal Lining Program developed an experimental, cooperative program to look for solutions to the problem. They decided to saw joints into the linings and fill them with mastic material. This turned out to be an

41. *Ibid.*, 3; "Project History," 1953, 3; "Project History," 1956, 3.

42. "Project History," 1952-4, 2.

43. "Project History," 1959-62, 4-5.

effective solution.⁴⁴

The District also received improvement assistance from the De Baca County Soil and Water Conservation District in 1965. The De Baca County Soil and Water Conservation District built seven silt detention dams with drawdown pipes across gullies and arroyos leading into Lake Sumner for the Fort Sumner Irrigation District. They used 22,564 cubic yards of material, at a cost of \$6,500.⁴⁵

Several years after rehabilitation of the project works, Reclamation and the Fort Sumner Irrigation District replaced twenty wooden gates with metal gates; the District also installed a pumping unit near the lower end of the upper drain in order to use drainage flows by pumping into a project lateral which served 800 acres in the south end of the project. This supplemented the project's water supply during water shortages by reusing available water.⁴⁶

However, one problem which occurred year in and year out, and which required the efforts of both the District and the Bureau, was weed control. Throughout the years various weed types caused varied problems with the water distribution system. The biggest problems came from Johnson Grass, woody plants, and salt cedar which restricted water flow. The District used many methods for controlling weeds. These methods included, burning with a liquid petroleum weed burner, and the use of herbicidal such as Dalapon and Kuron. The District was reimbursed several times for the purchase of chemicals, materials, labor and fuel for the process of weed control.⁴⁷

One improvement idea took years to completely accomplish, and helped initiate a new rehabilitation project for the Fort Sumner Irrigation District. That idea was to line the laterals

44. *Ibid.*, 6.

45. "Project History," 1965-6, 5.

46. "Project History," 1977-80, 8; "Project History," 1965-6, 3.

47. "Project History," 1955, 3; "Project History," 1956, 3-4; "Project History," 1957, 4; "Project History," 1958, 3; "Project History," 1959-62, 6; "Project History," 1965-6, 5.

with concrete. Beginning in the early 1960s, the District, annually, lined hundreds of yards of laterals and canal reaches. The Irrigation District participated in a joint Soil Conservation Service, farmer, and District cost-sharing program in concrete lining and concrete pipe installation for many of its laterals.

During the 1967-1976 period the District made plans for rehabilitation of the irrigation distribution system. The plan consisted of constructing and lining 8,000 linear feet of ditches, and 9,000 feet of concrete pipelines to carry 25 cfs of water to seventeen farmers with 800 acres of irrigated land.⁴⁸ The Fort Sumner Irrigation Board went to Reclamation in January 1976 with evidence that the existing facilities needed rehabilitation, and asked Reclamation to supplement project funds being given to the District by the Resources Conservation and Debt Program (RC&D). Reclamation denied their request.⁴⁹ However, with the assistance of the RC&D program, the Four Corners Regulation Commission, the New Mexico Interstate Stream Commission and the Fort Sumner Irrigation District water users, however, rehabilitation proceeded. The Fort Sumner Irrigation District Board held a dedication ceremony on September 11, 1978 to commemorate the completion of the Fort Sumner Farm Irrigation Measure in conjunction with the El Llamo Estacado RC&D program. The completed facility included construction of a 9,195 feet long 25 cfs lined canal adjacent to Reclamation's earth canal and waste-way. They also relocated the earth canal and wasteway for a couple of short stretches. The program also included thirty-seven water-check gates, and nineteen turnouts, costing a total of \$280,000. The improvements proved to be very beneficial and cost effective.⁵⁰

The Fort Sumner Irrigation District preformed all required operation and maintenance

48. "Project History," 1967-76, 8.

49. "Project History," 1977-80, 32.

50. *Ibid.*, 32, 36.

during Reclamation's rehabilitation of the project. It continued these responsibilities after the completion of the rehabilitation. As of 1983, the Fort Sumner Irrigation District Board of Directors still oversaw supervision of the diversion works. The Board employed managers and other additional personnel as needed to aid in supervision activities.⁵¹

The Fort Sumner Irrigation District's repayment contract with Reclamation called for an annual installment of \$30,402, or \$4.68 per irrigated acre, to be made, with the last payment scheduled to occur in the year 2033. The District paid their installments in-full until 1961. From 1961 through 1974 the District experienced financial difficulties. Gross crop values began dropping, and crop yields were reduced due to inclement weather; therefore, the District worked with Reclamation to adjust their payment schedule. The District paid 15-percent of their payment in 1961, and differed the rest of the payment until the last five years of the payment schedule. In 1962 and 1963, the District deferred half their payments until the latter years of the payment schedule. In August of 1963, the District again worked with Reclamation to adjust their payment schedule. The two organizations developed an amendatory contract which consisted of a variable repayment formula to help give the District relief in years of low crop market prices and/or low crop production. This payment readjustment greatly aided the District, which did not pay the full \$30,000 installment again until 1975.⁵²

Settlement of Project Lands

The main use for the project lands consisted of farming and raising livestock. Most of the farms on the project lands were already in existence prior to rehabilitation by Reclamation. Although rehabilitation did make irrigation of the project lands easier and more reliable, it did

51. "Project History," 1949-50, 12; "Project History," 1952-4, 1; "Project History," 1959-62, 4.

52. "Project History," 1951, 8; "Project History," 1950-62, 8; "Project History," 1963, 6; "Project History," 1967-76, 5; "Project History," 1981-3, 5.

not cause a large increase in population. However, in 1950, the town of Fort Sumner expanded onto part of the project lands, resulting in many city lots and urban tracts with water rights.⁵³

Uses of Project Water

The Fort Sumner Irrigation District has the right to divert up to 100cfs of the normal flow of the Pecos River during March - October, and for two periods not to exceed eight days each, between November 1 and February 28, for use on a maximum of 10,999 acres of land. The duty of the water is two and one-half acre feet delivered on the land. The District's right to divert water is limited to the amount applied for beneficial use. Water is allowed to pass through the Sumner Dam to the Fort Sumner District up to the amount of the District's rights.⁵⁴

The Fort Sumner Project Works were rehabilitated by Reclamation, primarily, to provide a safe diversion structure and lower pumping costs. The project also reduced water losses in the distribution system by the lining of the High Line and Main Canals.⁵⁵ Ultimately the rehabilitation provided efficient and reliable irrigation water to 6,500 acres of farmland in the Fort Sumner Irrigation District. Prior to, and during rehabilitation, the principal project crops were alfalfa, corn, grain sorghum, truck crops, apples, and grapes.⁵⁶ Some project water was also used for livestock enterprises because diversification was a way of providing a better family living for those on farms too small to succeed at growing cash crops.⁵⁷

It was assumed that an increase in the acres irrigated and a moderate increase in crop yields would result from the rehabilitation since more of the diverted water would reach fields. Rehabilitation did increase the amount of irrigated land and provide a larger acreage of alfalfa

53. "Project History," 1949-50, 5.

54. *Ibid.*, 13.

55. "Project History," 1952-4, Appendix, 1.

56. "Project History," 1949-50, 5.

57. "Project History," 1951, Appendix, 8.

instead of hay.⁵⁸ By 1957, an increase in the number of orchards being planted also occurred. This was due, mainly, to improved drainage of the project lands.⁵⁹ By the late 1970s cotton, forage crops, cattle, and sheep were the main project products.⁶⁰

In the 1980s a dispute over water rights and use developed between the Fort Sumner Irrigation District and the Carlsbad Irrigation District. The Carlsbad Irrigation District applied to amend the State Engineer's Order of September 22, 1972. They wanted the State Engineer to permit them to store irrigation waters in Lake Sumner, above elevation 4,261 feet (51,474 acre feet), from October 1 to April 30 each year. This plan would allow the Carlsbad Irrigation District the use of flood storage capacity to store irrigation waters in Lake Sumner during the season least prone to floods. The Fort Sumner Irrigation District disagreed with the plan because they claimed it could be detrimental to their water rights.⁶¹ However, at the Carlsbad Irrigation District's board meeting on January 12, 1982, it was reported that four days earlier, the Fort Sumner Irrigation District withdrew its protest, and Carlsbad's application to store water in Lake Sumner was approved by the State Engineer.⁶²

Conclusion

Although the Fort Sumner Project was not one of Reclamations larger projects, it was, none the less, very important to the water users in the Fort Sumner Irrigation District. Irrigation is vital to the survival of the farms in the Fort Sumner area. Reclamation's rehabilitation of the project works helped the Fort Sumner Irrigation District harness the valuable water supply from the Pecos River more reliably and more efficiently. The rehabilitation also kept the local farmers

58. "Project History," 1952-4, Appendix, 3.

59. "Project History," 1957, 4.

60. "Project History," 1977-80, 1.

61. *Ibid.*, 5.

62. The project histories did not mention why the Fort Sumner Irrigation District decided to drop its objections to Carlsbad's use of Lake Sumner as a water storage facility; "Project History," 1981-3, 5.

from constantly wondering if the Dam would wash out, or if the distribution system would fail once again. Without Reclamation's rehabilitation of the Fort Sumner Project, the unstable project works would have continued to plague the District with costly losses of water, continued high operation costs, and reduced crop yields.

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