The Spokane Valley Project

Wm. Joe Simonds
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The Spokane Valley Project is unique among projects constructed by the Bureau of Reclamation. Traditional reclamation projects involve the construction of new, or rehabilitation of existing, dams, reservoirs and distribution systems. But with the Spokane Valley Project, the existing system was abandoned and replaced by a system of wells, pumps, storage tanks, and pipelines to serve 7,200 acres of land in the Spokane Valley.

Project Location

The Spokane Valley Project is located on a ten-mile stretch of land which straddles the Spokane River east of Spokane, Washington. Project lands cover about 7,100 acres of land in Washington, and about 100 acres in Idaho. Project lands are divided into six areas: the Carder, Greenacres, and Corbin areas on the south side of the river, and the Otis Orchards, West Farms, and East Farms areas to the north of the river.

The lands of the Spokane Valley overlie glacial outwash deposits of highly pervious sand, gravel and cobbles which extend several hundred feet to bedrock. These deposits form a pervious aquifer for a large body of ground water which is the source of water for the project. The pervious substrata also provides excellent drainage which significantly reduces salinity and alkalinity, a problem that plagues other irrigated areas.[1]

Historic Setting

Settlement in the Spokane Valley began around the turn of the century and was fueled by the growth of the city of Spokane to the west. Between 1910 and 1920, a number of industries moved into the valley, including a paper mill and cement plant. In addition, shops and freight

1. Denver, National Archives and Records Administration, Rocky Mountain Region. Record Group 115, Records of the Bureau of Reclamation. Annual Project Histories: Spokane Valley Project, Vol. I, 1964: 3, 18.

yards for the Northern Pacific Railroad were located nearby, and a number of large lumber mills were operating in the area. The industrial development in the region attracted many people to the valley.

During World War II, the region experienced another period of substantial growth as war industries moved into the area. The Kaiser Aluminum and Chemical Corporation opened plants in the nearby towns of Trenton and Mead, employing more than 3,000 people. The Spokane Naval Supply Depot employed an additional 1,500 people. Following the war, the region continued to grow. In 1950, the population in the valley was around 26,000. By 1955, this had grown to near 40,000, and by 1964, the population had risen to more than 50,000.

Agricultural development in the valley began around 1903, when the Spokane Valley Land and Water Company was formed with the goal of irrigating more than 20,000 acres in the valley. In 1906, the company signed an agreement over water rights with the Washington Water Power Company, and set a schedule of irrigation diversion rates In 1908, the company began construction of a canal system to supply the valley, selling land to raise funds for construction. By 1912, the company had completed construction of a canal from Post Falls, just over the border in Idaho, to serve lands in the valley on the north side of the Spokane River. A branch to serve lands along the south side of the river was planned.

The system was designed to deliver 12 inches per acres, an amount that soon proved to be inadequate. In addition, seepage reduced the amount available. Within a few years following its completion, wooden structures in the system began to fail, and the diversion schedule limited deliveries during the late summer irrigation season, further limiting the amount of water available for irrigation. As a result, only a fraction of the original 22,000 acres received a full water supply.

In 1921, the Spokane Valley Farms Company was formed to take over water rights, facilities, unsold lands, and other assets of the Spokane Valley Land and Water Company. The new organization encouraged the formation of irrigation districts to more efficiently utilize their water rights. In 1922, two districts, the Spokane Valley Irrigation District No. 10, and the Greenacres Irrigation District, were formed in the area south of the river, and sold bonds to pay the Spokane Valley Farms Company for water rights and for construction of the South Branch Canal and lateral system. The Spokane Valley Farms Company lined portions of the main canal with concrete, replaced many wooden structures, and negotiated a more favorable agreement with the power company.

In 1924, two districts were formed on the north side of the river. The East Farms and West Farms Districts entered into similar agreements with the Spokane Valley Farms Company for water rights and system construction and rehabilitation. Later, three other districts, the Otis Orchards, Pasadena Park, and Trentwood Irrigation Districts, joined the system.

The system improvement program was completed around 1930. At the time, the system consisted of a 5-mile main canal, 12-mile North Branch Canal, 13 -mile South Branch Canal, and about 75-miles of laterals. Over time, the system was enlarged and about 50-miles of additional laterals were constructed. The seven districts under the Spokane Valley Farms Company eventually organized the Spokane River Canal Company to operate and maintain that portion of the system in Idaho. A similar organization, the Spokane Valley Joint Control Board, was formed to operate the Washington portion of the project.[2]

By the early 1950s, the condition of the system had deteriorated to such an extent that the continued operation became increasingly difficult and costly. Repairs made in 1948 only added

2. *Ibid*., 2-5.

a few years to the life of the system. In 1952, the districts requested the Bureau of Reclamation to study the existing system and make recommendations for its rehabilitation or replacement.[3]

Project Authorization

A reconnaissance report on the Spokane Valley Project was published in 1954. The report described six plans of development, concluding that the best alternative plan was to replace the existing system with a system of deep wells, pumping plants, and pressure distribution pipelines. At that time, all seven of the irrigation districts within the project area strongly supported the plan. A feasibility investigation of the pipeline proposal was initiated in late 1954, and published in August 1956. On September 16, 1959, some seven years after the water users had approached Reclamation for assistance, Congress authorized construction of the project to serve just over 10,000 acres which were then under the Spokane River Canal Company system. The next step was negotiation of a repayment contract between the government and water users.

As negotiations for the repayment contract progressed, it became clear that some of the districts did not wish to be included in the project. In the seven years between the first investigations and the project authorization, land use in several of the districts had changed significantly and irrigation usage had been greatly reduced. In addition, domestic water systems had been improved such that they could serve most of those lands at less expense and encumbrance to those lands than through construction of the project. As a result, two of the districts requested that their lands be removed from the project. Opposition to the project under its 1959 authorization prevented further repayment negotiations, and construction of the project could not proceed. The directors of the remaining districts requested that Reclamation restudy

3. *Ibid*., 7.

the project, reduce its size and eliminate facilities for those areas that did not wish to participate.

The revised plan called for construction of facilities to serve just over 7,200 acres within the remaining districts. Because of problems that would be encountered if Reclamation attempted to continue the project under the 1959 authorization, Congressional reauthorization was required. One condition of reauthorization was the formation of a single entity to contract with Reclamation for project construction and operation following completion. On January 11, 1961, an election was held to form the Consolidated Irrigation District. By a vote of 690 for and 47 against, formation of the district was approved. On September 5, 1962, Congress approved Public Law 87-630, amending the original 1959 authorization (Public Law 86-276), and providing for construction of the revised project. The repayment contract between the government and irrigation district was signed on August 1, 1963.[4]

Construction History

Project construction began in 1963 with surveys and test drilling. Survey work was carried out by government forces. The first contract let in association with the project was awarded in February 1963, to Holman Drilling Corporation, for drilling of test wells. Holman Drilling also contracted to drill exploratory pilot holes, and in May 1964, Holman received the contract to drill 34 water supply wells at 11 different sites. Drilling of the first wells began in June 1964, and work under the contract was completed in February 1965.

In early 1965, Reclamation contracted with the Lester N. Johnson Company to install more than 85 -miles of concrete distribution pipe. Work under the contract began in early July, and by the end of 1965, 28 -miles of pipe had been laid. The erection of 11 steel storage tanks, each with a capacity of 50,000 gallons, was contracted to Chicago Bridge and Iron Company,

4. *Ibid*., 6-16.

Inc. Erection of the first tank began in early August 1965. By the end of the year, the first tank was complete and the second tank partially complete. The contract for earthwork and construction of 34 deep-well pump plants was awarded to Emmett Nelson, Inc., in October 1964. Work under the contract began on October 6.

Project construction moved forward at a rapid pace. Chicago Bridge and Iron completed the last storage tank in mid-November 1966, several months ahead of schedule. Installation of the pipe lines by the Lester N. Johnson Company was essentially complete by the end of 1966, with only minor clean -up remaining. The last of the 34 pump units, supplied by Layne and Bowler, Inc., were delivered in February 1966. The last pump plant was completed by Emmett Nelson, Inc., on March 1, 1967. The project was officially dedicated on October 14, 1967, and turned over to the Consolidated Irrigation District for operation and maintenance on January 1, 1968.[5]

The completed system consists of 34 wells at 11 sites. Each well has a single, electrically powered pump, ranging from 100 to 300 horse-power, with capacity from 1,200 to 3,000 gallons per minute. At each of the 11 pumping sites, there is a 50,000 gallon, elevated steel storage tank which provides ready water availability at sufficient pressure for sprinkler irrigation. The distribution system consists of just over 100 -miles of buried concrete pipe which varies from 24 -inches down to 6 -inches in diameter. The Carder Area is supplied water from Pumping Site No. 1. The Corbin Area receives water from Pumping Sites Nos. 2 and 3. Pumping Site No. 4 supplies water to the Greenacres Area, while the West Farms Areas get water from Site No. 5. Pumping Sites Nos. 6, 8, and 9 supply water to the Otis Orchards Area, and Sites Nos. 7, 10, and

5. "Annual Project Histories, Spokane Valley Project," Vol. I, 1964: 53, 56, 61-2; Vol. II, 1965: 42-3, 82; Vol. III, 1966: 49-50, 127-8; Vol. IV, 1967: I, 28, 57.

11 provide water to the East Farms Area.[6]

Post Construction History

Since completion of the project, the primary issue in the area has been growth. Many of the larger farms have been divided and sold, and numerous housing developments have sprung up. Along with the growth, there has been an increase in demand for domestic water. To help meet this need, the Consolidated Irrigation District has constructed two, 2,000,000 gallon storage tanks, one on the south side of the river and one on the north side. To help ensure a reliable supply, the district tied the six individual areas together to form two, interconnected supply zones, one to the north and one to the south. In addition, the district has installed two booster pump stations with regulating reservoirs to help supply water to areas at high elevations.

For the most part, the original facilities are still in operation. When it becomes necessary to replace sections of the old pipe, new PVC pipe is used in place of the old asbestos-concrete pipe. Between 1986 and 1992, the district installed meters for all users and has since significantly reduced water usage throughout the district.[7]

Settlement of Project Lands

When the Spokane Valley Project was constructed, all of the lands within the Project boundaries were in private ownership. No lands were withdrawn for future settlement. In 1970, two years after the project began full operation, 96 full-time farms and 412 part-time farms with a total population of just over 2,200 people, received project water. By 1980, the number of farming units receiving project water had fallen to 24 full-time and 100 part-times farms with a population of 520 people. In 1990, the number of part-time farms had risen to 290, but the

6. Department of the Interior, Water and Power Resources Service, *Project Data*, (Denver: United States Government Printing Office, 1981), 1187; Department of the Interior, Bureau of Reclamation, *Spokane Valley Project, Washington - Idaho*, Map No. 808-100-7, (October 1967).
7. Robert Ashcraft, Manager - Consolidated Irrigation District No. 19. Telephone interview with author. 10 July, 1998.

average size of those farms dropped from 27 acres in 1970 to 13 acres in 1990. The population on project farms in 1990 was 1,020, up significantly from 1980.[8]

The changes in farm size, number of farm units and farm population during the decade of the 1980s can be partially explained by a shift from an agricultural economy to one fueled by other industries. Regional growth increased demand for land for non-agricultural uses, encouraging farmers to divide and sell large tracts of previously agricultural land. The increase in the number of part-time farms, though smaller in size, might indicate a trend towards "hobby farming," where land owners make their primary living elsewhere and farm for a hobby, or may lease their lands to others for pasture. This is a trend that has been seen in many other parts of the West. The proximity of a number of fairly large cities nearby such as Spokane and Coeur d'Alene, Idaho, would tend to support this theory.

Project Benefits and Uses of Project Water

The Spokane Valley Project was designed and constructed to provide full irrigation service to 7,432 acres of land. The actual number of acres receiving project water varies from year to year. The low point was 1975, when only 1,800 acres received water. Throughout the late 1980s and early 1990s, the average number of acres receiving water has been about 4,000. In 1992, the most recent reporting year, 3,995 acres of a possible 7,503 acres received project water. The value of crops grown on project lands in 1992 was $822,440. The primary crops grown on the project are forage and cereal crops, with a small amount of land dedicated to vegetables. In addition, there is about 2,500 acres of irrigated pasture land and about 500 acres of family gardens and orchards.

8. Department of the Interior, Bureau of Reclamation, *1990 Summary Statistics: Water, Land, and Related Data*, (United States Government Printing Office, (No date), 51, 54; Department of the Interior, Bureau of Reclamation, *1980 Annual Report, Crop and Related Data*, Appendix I, (United States government Printing Office, 1981),274, 277; Department of the Interior, Bureau of Reclamation, *Water & Land Resource Accomplishments, 1970*, (United States Government Printing Office, 1971),233, 235.

In addition to agricultural benefits, about 1,800 acres of urban and suburban lands within the project receive project water as well as numerous municipal and industrial users.[9]

Conclusion

The Spokane Valley Project is an example of Reclamation's ability to rise to the needs of an area's water users. Recognizing that the best solution to the problem was not construction of a new dam or canal system, but the use of an alternative solution clearly demonstrates Reclamation's skill, expertise and flexibility in adapting to the situation at hand and arriving at the best solution to the problem.

About the Author

William Joe Simonds was born and raised in Colorado and has a clear understanding of the importance of water in the American West and its influence on the development of that region. He attended Colorado State University where he received a BA in History in 1992 and a Masters in Public History in 1995. He lives with his wife and two children in Fort Collins, Colorado.

9. *1992 Summary Statistics: Water, Land, and Related Data*: 63, 169; *Project Data*, 1190.

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