

Hammond Project

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The Hammond Project

The purpose of the Colorado River Storage Project and its designated participating projects was to help aid growth and development of the Upper Colorado River Basin, as well as provide a means for the upper basin to meet their annual water requirements to the lower basin.¹ The large main stem units—Flaming Gorge, Glen Canyon, Navajo, and Wayne Aspinall—regulate the flow of the Colorado River and provide funds to construct smaller, tributary units designed to stabilize existing communities and facilitate population growth. The Hammond Project fell under the jurisdiction of community development. Originally settled by farmers, area residents soon discovered that local stream flows did not provide adequate moisture at the necessary times and places for crop production. These early settlers began constructing small irrigation works only to discover the high cost of irrigation in the area. Flooding and unstable soils plagued local irrigation structures relentlessly, necessitating multiple and costly repairs, a problem that the Bureau of Reclamation (Reclamation) became intimately familiar with when the agency stepped in to construct essential irrigation facilities.

Project Location

Located in northwestern New Mexico, the Hammond Project consists of the Hammond Diversion Dam, the Main Gravity Canal, a hydraulic-turbine-driven pumping plant and an auxiliary pumping plant, and distribution facilities. Hammond Diversion Dam sits on the San Juan River about two-miles upstream from Blanco, New Mexico. Project lands extend in a narrow strip roughly twenty-miles long adjacent to the southern bank of the San Juan River, opposite the towns of Blanco, Bloomfield, and Farmington, New Mexico. The project provides

1. The Colorado River Compact, negotiated in 1922 and approved by Congress in 1928, requires that the Upper Colorado River Basin deliver 7.5 million acre-feet of water to the Lower Basin each year.

irrigation water to nearly 4,000 acres of land in the project area.

Historic Setting

Prehistoric Setting

Scholars generally agree that humans of an unknown physical type first inhabited the New Mexico region. The first remnants of these early inhabitants in northwestern New Mexico take the form of Folsom points, curious flint points of superb workmanship, dating from approximately 10,700 to 10,200 years ago. The Folsom hunters died out around seven-thousand years ago, apparently when a severe drought struck the continent, resulting in the disappearance of big game animals effectively ensuring the demise of the cultures which hunted them.

West of the Continental Divide another indigenous culture, the Cochise, fared much better than the Folsom hunters when drought struck. With an economy based upon collection of wild foods and hunting of small game, the Cochise adapted to the change in climatic conditions and thus formed the basis from which the later Pueblo farming cultures developed. Cochise artifacts and small primitive ears of corn discovered in 1949 gave scholars the first real evidence of an agricultural society dating back four or five thousand years. These early agricultural endeavors likely represented only a small portion of food procurement activities. Evidence indicates that inhabitants of the southwest did not move from their dominantly hunting and gathering pattern into a largely agricultural society until around twenty-five hundred years ago; these first permanent settlements likely occurred in the vicinity of the Gila and Salt Rivers which provided the necessary water for irrigation. The development of full-blown agriculture heralded a transformation of the simple Cochise way of life into a more sophisticated southwestern tradition.

The first of the more sophisticated cultures emerged around 2,100 years ago. The

Mogollon, as archaeologists categorize them, were the first representatives of the new traditions. They lived along the present day New Mexico-Arizona border. Characterized by their pit-house villages, ceremonial lodges, production of artistic ceramics, and farming on mesa tops and in stream valleys, the Mogollon soon became the cultural leaders of the southwest.

In a process similar to that of the Mogollon tribe, residents of the current Four Corners area began to adopt new traditions. Beginning about fifteen hundred years ago the Basketmakers—a desert, gathering people were named after their superbly woven baskets left behind in dry caves—evolved into the Anasazi, the direct ancestors of the historic Pueblo cultures. Anasazi, a word used by the Navajo and later archaeologists to designate the prehistoric inhabitants of the Four Corners region and generally considered to mean “the Ancient Ones,” actually means “enemy ancestors” in Navajo. Much to the chagrin of current Pueblo peoples, the English usage of the word has become widespread and few recognize or acknowledge its historic meaning.

The Anasazi built large urban centers with towering buildings; these apartment complexes gave the Pueblo their name when visited by the Spanish explorers of the area. The Pueblo created elaborate irrigation works and complex systems of communication and trade while continuing to hunt and produce elaborate ceramic pottery. The Anasazi are perhaps best known for their elaborate cliff dwellings at Mesa Verde, Colorado, though other notable ruins exist within Chaco Canyon, Aztec, Bandelier, and Pecos National Monuments in New Mexico. Eventually the Anasazi abandoned several of their settlements, including Mesa Verde around 1200, as smaller tribes moved together to create large communities. Archaeologists have yet to determine if the arrival of the Navajo tribe in the region contributed to the sudden departure of the Anasazi. It was in the larger Anasazi communities, located largely in the valleys of the Rio

Grande and its tributaries and on the Pajarito Plateau, that the Spanish found a group now known as the Pueblo Indians in the sixteenth century.²

Historic Setting

Pueblo culture first developed in the Four Corners area near the current Hammond Project. By the time of Spanish contact Pueblo cultures had migrated south and east to Hopi, Zuni, Acoma, Laguna, and the Rio Grande Valley. Spanish occupation of the Rio Grande Valley little affected Northwest New Mexico which was seldom visited by the Spanish. There was, however, continued tension and friction among the Spanish, Pueblos, and Navajo/Apache.³

William and Simeon Hendrickson, two gold seekers from Animas City, Colorado, founded the town of Farmington, New Mexico in 1876. Soon becoming an agricultural supply center for the Rocky Mountain mining camps of the San Juan Basin, Farmington boasted a small but steadily growing population that thrived on fruit and cereal production. The founding in 1881, of the nearby city of Durango, Colorado, located fifty miles northwest, coupled with the 1880s arrival of William Jackson Palmer's Denver and Rio Grande Railroad (D&RG) in Durango, set-off a burgeoning race between the two cities for control of the limited natural resources in the area. General Palmer and Edward Henry Harriman, president of the Southern Pacific Railroad, fostered the rivalry between the two towns; both sought to establish a link between Farmington and the transcontinental lines which intersected at Gallup, New Mexico. After considerable negotiation, Harriman eventually secured the contract. He envisioned transporting coal to the port city of Guaymas, Mexico for shipment and sale overseas, however his untimely death in 1909 and the outbreak of the Mexican Revolution one year later halted the

2. Marc Simmons, *New Mexico: A Bicentennial History*, (New York: W. W. Norton and Company, Inc., 1977), 45-54; William C. Sturtevant, ed., *Handbook of North American Indians*, Vol. 9, *Southwest*, Alfonso Ortiz, ed. (Washington, D.C.: Smithsonian Institution, 1979), 43-4, 47, 108, 126, 131.

3. Sturtevant, Vol. 9, 206-22; Sturtevant, Vol. 10, 506-23.

project. In the meantime, the D&RG built a short-line narrow-gauge connection between Farmington and Durango. Harriman's death left the short D&RG line as the only rail transportation in Farmington.

In the next few decades Farmington became one of many small towns across America struggling to capitalize on its nearby natural resources by producing alternative sources of energy for the growing populace. In 1926, miners made a major petroleum strike just southwest of Shiprock on the Navajo Reservation; with the advent of motor travel in the 1920s, oil replaced coal as the nation's leading fuel. The petroleum strike stimulated Farmington's first true population boom with geologists and roughnecks converging on the previously tranquil agricultural community. For the most part, newcomers found work in the oil fields or at the newly built Continental Oil gasoline factory.

Further population growth and natural resources booms followed. In 1932, the Southern Union Gas Company of Dallas, Texas, discovered natural gas in the San Juan Basin. Southern Union Gas made a second significant find in the Barker Dome area, fifteen miles northwest of Farmington, in October of 1946. Three years later, in 1949, El Paso Natural Gas announced plans for a multimillion-dollar pipeline from San Juan Basin gas fields to Toprock, Arizona. From Toprock the pipeline would join the Pacific Gas and Electric pipeline to supply San Francisco with gas for heating.

At the same time that petroleum based resources were being developed in the Farmington area, an energy boom of another kind occurred near Durango. After World War II, fueled by the developing Cold War between the United States and the Soviet Union and a priority shift towards national security, the U.S. began stockpiling atomic-weapons. The shift in focus to atomic energy brought yet another energy boom to the area when the Atomic Energy

Commission (AEC) released a report in January of 1948, estimating that the majority of the world's uranium reserves were located in southeast Utah and southwest Colorado. The news of the abundance of uranium coupled with governmental plans to reactivate Durango's smelter, closed since the end of the silver mining days in the 1880s, caused local residents to envision Durango as the nation's leading producer of uranium concentrate.

Local predictions seemed destined to become a reality after President Harry Truman's State of the Union address in 1952. Truman proposed a record-breaking defense budget, stressing production of small atomic weapons and nuclear submarines for national security reasons and underscoring the need for increased uranium production in the Mountain West.

The booming energy development lead to a population boom in both Durango and Farmington. By 1952, Farmington had become the fastest growing city (in terms of percentage) in New Mexico. Not to be outdone, Durango continued to proclaim itself the "region of wealth." in 1956, Farmington boasted a population of more than 15,000 residents, four times that of the 1950 census. Observers attributed Farmington's meteoric growth to a multifaceted economy that combined energy resource development, irrigated agriculture, and manufacturing.⁴

Beginning with the first settlers in the area in the 1870s, the economy on the lands that became the Hammond Project relied mostly on irrigated agriculture leaving the area dependent upon an often uncertain water supply. To counteract a fickle mother nature, in 1885 and 1886, local residents began, through the use of water wheels, irrigating small tracts of land with water from the San Juan River. The water wheels slowly evolved into small irrigation ditches the last of which, Model Ditch, was abandoned due to high maintenance expenses.

4. Arthur R. Gómez, "Urban Imperialism in the Modern West: Farmington, New Mexico, vs. Durango, Colorado, 1945-65," in *Essays in Twentieth-Century New Mexico History*, ed. Judith Boyce DeMark (Albuquerque: University of New Mexico Press, 1994), 135-41.

Irrigation efforts in the area resumed in 1892, when local residents constructed the Hammond Ditch to irrigate a small section of land on the south side of the river above Blanco. In 1902, residents extended the Hammond Ditch to serve the area previously irrigated by the Model Ditch. With the aid of irrigation water farmers and fruit growers in the area prospered. Ditch operators, however, did not fare so well. Maintaining a wash crossing in Largo Canyon proved very difficult and that portion of the ditch required frequent and expensive repairs. At one point irrigators replaced the open ditch crossing with a wooden pipe siphon across the wash, however, flash floods caused breaks in the siphon which again led to costly repairs. Funds to repair the siphon and for betterment of the entire system not forthcoming, residents began abandoning the area beginning in 1912. By 1916, few settlers remained and those that did had turned their attentions to sheep and cattle ranching, little if any irrigated agriculture took place on the land.

In 1939, a group of local men organized a nonprofit organization, Hammond, Inc., designed to foster the redevelopment of the lands once served by the Hammond Ditch. The organization planned to rebuild the canal system and settle the project area with families on sixty to one-hundred sixty acre tracts. Families would move onto the project lands, construct homes and other buildings with a cash expenditure of between \$300 and \$400 dollars, then contribute their labors toward construction of irrigation facilities. The organization applied to various federal agencies, including the Farm Security Administration and the Department of Agriculture. In response to the application, in 1939 and 1940, the Soil Conservation Service, in cooperation with the Farm Security Administration, surveyed and classified the land and prepared a cost estimate for the project. The Bureau of Agricultural Economics, within the Department of Agriculture, reported adversely on the project and without outside funding the local organization

relinquished the venture.

In 1945, local water users formed another local organization, the Kutz Canyon Water Users Association, with the intention of diverting water from the San Juan River at Bloomfield, New Mexico, to irrigate nearly 2,500 acres of land. By 1955, through the use of a pumping plant, this association actually delivered water to about 1,000 acres of land. Overall the venture was rather unsuccessful due to pumping plant failures and lack of adequate cross drainage structures which resulted in serious crop failures. Five additional gravity irrigation systems served an additional 350 acres of land. These smaller systems also faced high operating costs and owners struggled to maintain the structures. In April of 1958, prior to the start of construction activities, the local water users organized the Hammond Water Conservancy District as the general administrative and contracting agency for the Hammond Project.⁵

Project Authorization

With the Colorado River Storage Project Act of April 11, 1956, Congress authorized construction of four storage units in the Colorado River Storage Project (Flaming Gorge, Glen Canyon, Navajo, and the Wayne Aspinall⁶ Units) and eleven participating projects scattered throughout Arizona, Colorado, New Mexico, Utah, and Wyoming. As development of the upper basin continued Congress authorized additional participating CRSP projects.

Reclamation, as part of a basin-wide investigation, prepared the first report on the Hammond Project in 1946; dating back to the turn of the century, various local and governmental agencies had explored the San Juan River Basin for development without tangible result. Reclamation conducted and documented additional feasibility studies in 1947 and 1950.

5. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 1, 1960, 1-3; *Project Data*, 526.

6. Reclamation renamed the Curecanti Unit the Wayne Aspinall Unit October 3, 1980.

Based on these reports Congress authorized the Hammond Project as one of the initial participating projects of the Colorado River Storage Project in April of 1956. Investigations and planning continued and in March of 1958, two years after its authorization, Reclamation completed the definite plan report on the project.⁷

Construction History

Reclamation awarded the first contract for construction on the Hammond Project on June 29, 1960, to Riverside Corporation of Farmington, New Mexico for construction of the first five and one-half miles of the main canal. Actual construction activities began a month later on July 29, 1960, with excavation of the main canal. The Riverside Corporation completed all work on the Hammond Main Canal the following July and Reclamation accepted the work as complete on July 17, 1961.

Reclamation awarded the contract for construction of earthwork and structures, Hammond Diversion Dam and Main Canal, to Skousen Construction Company and G. F. Chapel of Albuquerque, New Mexico on March 8, 1961. The contractors began work on the structures March 14. Reclamation accepted all work on the structures as complete a year later on March 20, 1962.

Reclamation awarded the contract for construction of the Hammond Pumping Plant and penstock, bypass, and discharge lines to Goodman & Sons of Farmington, New Mexico on May 5, 1961. Work on this portion of the project began when a subcontractor, H. Robert Brimhall, started excavating for the pumping plant. Reclamation accepted all work on the contract as complete on June 16, 1962.

Reclamation awarded the contract for the remaining work on the Main Canal and the East

7. *Project Data*, 526-7.

Highline and Gravity Extension Laterals to Dan-D Construction, Inc. and D. D. Skousen and Son on June 28, 1961. Work started two weeks later on July 12. Reclamation accepted the contract as complete on August 9, 1962.

Initial deliveries of project water to the Hammond Conservancy District occurred April 16, 1962. Firm deliveries of water started two weeks later on April 30, signifying the end of general construction activities on the project.⁸ Just after the start of water deliveries on the project water users discovered excessive subsidence around the Main Canal necessitating repairs which continued throughout the next several years. At the request of the conservancy district, Reclamation opted to wait to transfer the project to operation and maintenance (O&M) status until the subsidence and settlement of the canal ended.⁹

Repair work on the canal due to subsidence began in 1963, not long after completion of the major project features. In January of 1964, Reclamation awarded the contract for construction of the main canal siphon to McJunkin Construction Company. The contractor began work in February and completed the structure in April. The following October, Reclamation constructed a open drain roughly six-hundred feet in length to help alleviate drainage problems on the canal. The initial drain proved unsatisfactory and in October of 1966, Reclamation constructed a second open drain in the same area. The second drain was more effective and Reclamation later deepened it and converted it to a closed drain. Also in 1964, Reclamation constructed an overflow spillway at the high water line on the upper bank of the main canal.

8. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 1, 1960, 3; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 2, 1961, 1-2; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 3, 1962, 1.

9. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 4, 1963, 9, 11.

During the first part of 1966, the San Juan Basin Construction Company lined nearly 4,000 linear feet of the main canal. Reclamation awarded the contract the previous November. The contractor completed all work on the project in March of 1966.

Emergency repairs to the main canal and laterals continued throughout the year 1966. The subsidence areas on both the pump laterals and the gravity extension lateral proved especially challenging. The subsidence on the west highline lateral was so bad Reclamation relocated portions of the lateral to higher ground to the south of its original location. To compound matters numerous rain storms during the summer caused breaks in the canal and lateral banks as well as flooding throughout the system. Heavy rains also caused the road crossing at Armenta Wash to washout eight times during the summer.

To prevent loss of inlet and outlet structures, practically all of the siphon crossings on the main canal required channel protection in the washes. Ordinary rock riprap proved ineffective for various reasons. As a result Reclamation decided to use old car bodies, cabled together lengthways which proved very effective. During the repeated summer flooding silt and debris covered many of the car bodies. To reinforce the makeshift riprap structures, Reclamation placed more car bodies on top of those already in the wash and tied them all together with heavy cable. This process continued for the next several years.¹⁰

Subsidence problems continued in 1967, requiring additional repairs to the irrigation delivery system. Major repairs for the year included repair of a subsidence area near the end of the east highline lateral and an area along the main canal between the county road bridge and the pumping plant. Reclamation also initiated a program of cross drainage work consisting of the

10. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 5, 1964, 11, 13, 23-4, 25; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 7, 1966, 11, 14, 18.

construction of collection ditches, protective dikes, and flood retention tanks. The west highline lateral discharge line developed a leak at the start of irrigation season in April; the same problem occurred the following April of 1968. During both years, O&M personnel made the repairs allowing for operation of the discharge line to begin a week later. Reclamation replaced the concrete pipe drop at lateral c with about 230 feet of galvanized eighteen-inch pipe salvaged from the air-inlet system at Navajo Dam. The original pipe failed because of poor quality concrete pipe and faulty backfill placement. At the same time, land subsidence caused the structure to settle so Reclamation raised the pipe drop two feet stabilizing the structure. Reclamation also rebuilt the banks and reshaped the waterway section along over 2,500 feet of lateral B.

In December of 1967, Reclamation awarded a contract to Kellner-Jetties Company for construction of a steel jetty system along the Largo Canyon channel for large siphon erosion control. The contractor began work in February of 1968 and Reclamation accepted the contract as complete on March 7, 1968. In June, Reclamation awarded a contract for construction of a series of project drains to Joe P. Starr of Albuquerque, New Mexico. The contractor started work in July. Work under the contract continued through the following April when Reclamation accepted the contract as complete.

Reclamation began construction, in October of 1968, of a supplemental pumping plant, to supplement water deliveries from the east highline lateral during periods of peak demand by water users. Work on this project feature took several months, but Reclamation completed all necessary work and testing to put it into operation for the 1969 irrigation season. Prior to the start of the 1969 irrigation season, Reclamation cleaned and reshaped the main canal. Reclamation forces also continued to repair various portions of the irrigation system damaged by

flood waters and subsidence.¹¹

One of the areas most in need of repair was the Horn Canyon wash; historically operational waste water caused erosion problems in this area. In July of 1968, Reclamation placed one-hundred car bodies in the wash to stop erosion of class A lands in the area. In August of the following year, Reclamation placed four-hundred feet of channel protection consisting of fencing and trees inside the channel to prevent further bank erosion. In September, a torrential storm jeopardized the siphon and wasteway. These problems prompted Reclamation to modify the siphon and wasteway. During the first part of 1970, Reclamation awarded the contract for repairs and modifications to the siphon to Marco Construction Company. The contractor completed all work on the contract in June of 1970.

Despite Reclamation's best efforts problems continued to plague the delivery and drainage system on the project, in 1970. Some of the main problems Reclamation encountered this year included reshaping and placing of protective dikes along the main canal, correcting subsidence problems, cleaning and fencing drains, hauling protective riprap for drain headwalls, and controlling erosion problems. Reclamation also repaired soil and moisture cross drainage collection ditches and protective dikes on the main canal in the Horn Canyon area. Despite the continuing problems on the project Reclamation determined that the project O&M would be gradually turned over to the conservancy district beginning in January of 1973.¹²

Prior to turning the project over to the conservancy district Reclamation continued to make and oversee necessary repairs to the project. In April of 1971, Reclamation awarded a

11. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 8, 1967, 14, 17; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 9, 1968, 12, 15, 20-1, 22, 23; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 10, 1969, 14, 20-1, 29.

12. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 11, 1970, 6, 8, 12, 17.

schedule two of a contract for lowering Armenta Canyon siphon and erosion control structures on the main canal to Cunningham Construction Company, Inc. of Albuquerque, New Mexico. The contractor completed all work on the contract in July of 1971. Reclamation awarded schedule one of this contract to Lee Johnson Construction Company of Rifle, Colorado on November 16, 1971. Reclamation accepted schedule one as complete on April 7, 1972. In the fall of 1971, Reclamation cleaned the system and reshaped and gravel lined the main canal. In 1972, Reclamation awarded two minor contracts, one in February and one in October, for additional minor rehabilitation work to Silver Peak Corporation of Cortez, Colorado and A&J Constructors, Inc., of Homedale, Idaho.

Reclamation officially transferred the operation and maintenance of the Hammond Project to the Hammond Water Conservancy District on January 1, 1973. For the next three years, Reclamation continued to oversee work on the project, including concrete canal lining, culvert replacement, modifications of the diversion dam, and installation of closed drains.¹³

The Hammond Project consists of the Hammond Diversion Dam, the Main Gravity Canal, the Hammond Pumping Plant, and assorted irrigation and distribution facilities. Hammond Diversion dam--a rockfill overflow weir with embankment wings, a concrete cut-off wall, and a compacted earthfill dike on the right abutment--sits on the San Juan River about two-miles upstream from Blanco, New Mexico and nineteen miles downstream of Navajo Dam. The dam reaches only twelve-feet above the streambed with a 1,370 foot-long crest.

From the diversion dam project water is diverted into the twenty-seven mile long Hammond Main Canal. About six-miles below the headworks of the main canal a thirty-two

13. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 12, 1971, 5, 6, 14; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 13, 1972, 5; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 14, 1973-4, 5.

foot drop diverts water into the Hammond Pumping Plant which then lifts water into the east and west highline laterals. After traveling through the turbine the water used in the pumping plant returns to the main canal. An auxiliary pumping plant, constructed in 1968, serves the east highline lateral exclusively. A portion of the remaining water in the main canal continues westward into the gravity extension lateral serving lands between the lateral and the main canal. Several minor laterals make small gravity diversions to the remaining project lands.¹⁴

Post-Construction History

During the first part of 1973, Reclamation prepared specifications to raise the skimmer wall on the Hammond Diversion Dam two feet. In November of 1974, Reclamation awarded the contract for this work to A&J Constructors, Inc., who in turn subcontracted the job to Don Jaramillo Construction Company. The subcontractor completed the skimmer wall the following year. This structure experienced no major problems after its completion. Reclamation awarded a second contract to A&J Constructors, Inc., the previous November, this one for concrete lining of canals and laterals on the project. Another portion of the main canal was reshaped and lined with gravel to reduce seepage and stabilize the canal banks. In February of 1976, Reclamation awarded a contract to Mountain Gravel and Construction Company for the job of slope stabilization along the main canal.

Structures on the project remained relatively stable for the next several years. The conservancy district made general repairs to the project in 1979, but unlike previous years no major work was required. In 1980, there was some concern about the unauthorized use of project water for municipal and industrial (M&I) purposes. The problem proved to be relatively minor; together Reclamation and the conservancy district resolved the issue and the misuse of

14. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 1, 1960, 3-4, 22-3; *Project Data*, 525-6.

project water ceased. In January of 1981, the New Mexico State Highway Department widened portions of the highway along the project. During the course of construction activities the highway department uncovered a siphon drain covered up by new portions of the highway. Reclamation decided to abandon the structure instead of move it. In 1981 and 1982, the conservancy district took care of capping the existing drain and constructing a new one. Unusually heavy rains in July of 1981, caused extensive damage to a siphon structure on the gravity extension lateral necessitating immediate repair. Reclamation determined the situation to be an emergency condition and advanced funds to the conservancy district for repair of the structure.

The next several years passed with only minor, if any, necessary maintenance activities on the project. In 1985, the conservancy district made general repairs to the hydraulic turbine and pump units in the Hammond Pumping Plant. A minor rockfall landslide occurred along the main canal in May of 1990. The landslide caused little damage and a ditchrider easily removed the fragments from the canal. The following September, Reclamation personnel conducted landslide surveillance on the canals and laterals throughout the project. They found no new potential landslide areas; however, a preexisting rockfall, recorded on the landslide register for the project, showed potential for future failure. To date the area remains stable and no new problems have occurred on the project.¹⁵

Settlement of the Project/ Uses of Project Water

15. "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 14, 1973-4, 5, 11; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 15, 1975-6, 8; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 17, 1979-80-81, 2, 3, 9, 19; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 18, 1982, 12; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 21, 1985, 34; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 24, 1988, 9; "Annual Project History, Hammond Project, Colorado River Storage Project-Participating Project," volume 26, 1990, 7.

Operated and Maintained by the Hammond Water Conservancy District of nearby Bloomfield, New Mexico, the project provides water to nearly 4,000 acres of farm and pasture land along the San Juan River. Private owners held most of the project lands long before construction of the project irrigation facilities. Prior to project construction the Kutz Canyon Water Users Association operated a pumping plant which provided water to approximately 1,000 acres of land. The principal crops grown on project lands include alfalfa, apples, corn, beans, pasture, wheat, oats, and barley. The project contributed to the local economy through an increase in production of dairy products and cash crops. Reclamation did not develop any new lands in conjunction with the project.¹⁶

Conclusion

Congress and Reclamation initially designed the Colorado River Storage Project to do two things: allow the upper basin to meet its flow requirements to the lower basin at Lees Ferry, by extension regulating the river, and generate funds through the sale of hydroelectricity to fund construction of smaller tributary units to facilitate and stabilize growth within the basin. The second project purpose permitted Reclamation to develop a series of “participating projects” which otherwise would in all likelihood be declared infeasible for economic reasons. Instead under the provisions of CRSP the main stem units help repay construction costs beyond the irrigators “ability to pay” accrued on smaller projects. Reclamation scattered these participating projects throughout the upper basin—Congress authorized twenty-five authorized in all, though several never made it off the drawing board and the fate of Animas-La Plata remains undecided.

The Hammond Project numbers among those project that Reclamation actually

16. “Annual Project History, Hammond Project, Colorado River Storage Project–Participating Project,” volume 24, 1988, 18; “Annual Project History, Hammond Project, Colorado River Storage Project–Participating Project,” volume 11, 1970, 21; *Project Data*, 525, 527.

constructed with the aid of funds generated on the main-stem of the Colorado. One can speculate that without the funds provided by the main-stem “cash register” dams on the Colorado River, Reclamation would not have built the Hammond Project. Local water users did not meet “ability to pay” criteria making the project economically infeasible without the financial assistance provided by CRSP. Financial assistance aside, the Hammond Project provided water to a small community in need. The Hammond Project does not qualify as a money making project for Reclamation, however, it positively impacted the local community, and made all the difference to the local quality of life.

About the Author

Toni Rae Linenberger, a Colorado native, received her B.A. in History from The Colorado College in Colorado Springs, Colorado in 1996. In 1998, she earned a MS in Western American History from Utah State University in Logan, Utah. Ms. Linenberger’s final paper, a case study entitled *A Dam for All Seasons: Hollywood, the Bureau of Reclamation, and Construction of Parker Dam*, explored the relationship between the growth of a small town in California and the development of the Colorado River.

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