	MP-1406
Bartlett Dam Name of Property	Maricopa, AZ County and State
United States Department of the Interior National Park Service National Register of Historic Place Registration Form	es Nati. Reg. of Historic Plac Nati. Reg. of Historic Plac
This form is for use in nominating or requesting determinations for individual to Complete the National Register of Historic Places Registration Form. If a 'not applicable." For functions, architectural classification, materials, and nstructions. Place additional certification comments, entries, and narrate	any item does not apply to the property being documented, enter "N/A" for areas of significance, enter only categories and subcategories from th
1. Name of Property	
Historic name Bartlett Dam	
Other names/site number	
2. Location	
city or town <u>Carefree</u> State Arizona code <u>AZ</u> county Marico 3. State/Federal Agency Certification	opa code 013 zip code
As the designated authority under the National Historic Prese I hereby certify that this X nomination request for determined authority and the second s	
standards for registering properties in the National Register of professional requirements set forth in 36 CFR Part 60. In my opinion, the property <u>X</u> meets <u>does not meet the</u>	
property be considered significant at the following level(s) ofnationalX_statewidelocal	significance:
Signature of certifying official	Date 11/22/2016
Federal Preservation Officer	BOK, DO/ State or Federal agency and bureau
	ster criteria.
In my opinion, the property meets does not meet the National Regis	
In my opinion, the property meets does not meet the National Regis Signature of commenting official	Date

Bartlett Dam Name of Property Maricopa, AZ County and State

United States Department of the Interior National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See Instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional certification comments, entries, and narrative items on continuation sheets (NPS Form 10-900a).

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Historic name	Bartlett D	am						
Other names/sit	e number							
2. Location								
street & number	On the Ve	erde River,	approx	imately 5	0 miles east-n	ortheast of Ph	oenix	not for publication
ity or town	Carefree		_					⊠ vicinity
State Arizona		code	AZ	county	Maricopa	code	013	_ zip code
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As the designa	ted authori	ty under th	e Natio	nal Histor	ic Preservation	Act as ame	nded.	
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Bartlett I Name of P				Maricopa, County and	
4. Nati	onal Park Service Cer	tification			
	certify that this property is: entered in the National Regist determined eligible for the Na determined not eligible for the	tional Register	ignature of the Keeper		Date of Action
	removed from the National Re	egister			
5. Class	sification				
Check as	hip of Property many boxes as apply) public - Local public - State public - Federal private f related multiple prop		Number of Resc (Do not include previ Contributing 1 1 Number of cont listed in the Nat	Noncontribut 1 1 ributing resour	es in the count.) ting sites structures objects buildings Total
6. Funct	ion or Use				
Historic Enter cate	Functions agories from instructions) Processing/Extraction,	Waterworks	Current Functio (Enter categories from Industry/Process	m instructions)	Vaterworks
Governm	nent/Public Works		Government/Pub	lic Works	

Bartlett Dam Name of Property	Maricopa, AZ County and State
7. Description	
Architectural Classification (Enter categories from instructions)	Materials (Enter categories from instructions)
Other/multi-arch hollow buttress dam	foundation:
	walls: Reinforced concrete
	roof:
	other: Reinforced concrete
Narrative Description	

Summary Paragraph

Bartlett Dam is associated with the evolution of the Salt River Project (Project) and the physical and economic growth of the Phoenix metropolitan area in the 20th century. The structure consists of the dam, the attached small valve/river outlet house, and historic gated spillway/channel. The non-contributing resource is a new auxiliary spillway 1,500 feet south of the left abutment, which was built in the mid-1990s. Like the other Verde River project facility, Horseshoe Dam, Bartlett Dam does not produce hydropower, due to erratic stream flows. It is used for irrigation and municipal water storage. Bartlett Dam is located in a canyon notch on the Verde River approximately 50 miles northeast of Phoenix and 10 miles east of Carefree, Arizona.

Narrative Description

From 1936 to 1939, the U.S. Bureau of Reclamation (Reclamation) constructed Bartlett Dam on the Verde River. It is a curved multiple-arch dam that contains 182,000 cubic yards of concrete, stands 308.5 feet high (originally 287 feet) and has a crest length of 800 feet, not including the spillway crest. Bartlett Dam consists of nine hollow buttresses, eleven arches, and short gravity sections at each abutment. Bartlett Dam's buttresses were placed 60 feet apart on centers with a net arch span of 48 feet. Because the dam curves, the buttresses are not parallel but diverge from each other at an angle of 2 degrees, 30 minutes. Thickness of the concrete arches and the buttress walls vary from seven feet at the base to 2.34 feet at the crest. The original spillway is at the right (north) abutment, and is a curved, heavily banked, 170 feet wide by 550 feet long concrete lined channel with training walls; its maximum rated discharge capacity is 175,000 cubic feet per second (cfs). The spillway's lower end is elevated slightly to check erosion during releases, with cyclopean masonry protecting the spillway channel. Releases are controlled by three 50-foot, 200-ton crawler-type Stoney gates, whose mechanisms are housed in a gate house adjacent to the right (north) abutment. Hoists powered by 7.5 horsepower motors can raise these gates at a rate of approximately four inches per minute. The large superstructure of the spillway control house lacks any architectural detailing except for regularly spaced industrial windows at the top east and west elevations and along the vertical end towers. The dam's outlet works consist of five steel pipes that run through the left abutment, two of which are controlled by 66-inch needle valves, while the other three are controlled by 6 feet by 7.5 feet slide gates (at low lake levels only). The housing for the valves is an unadorned square concrete box with industrial sash near the southern dam abutment.

Bartlett Dam forms the 12-mile long Bartlett Reservoir, which has a total capacity of 178,500 acre-feet and covers 4,000 acres. Bartlett Dam cost \$4,000,000 to build. Bartlett Dam and Bartlett Reservoir are named after Bill Bartlett, a government surveyor. Bartlett Dam was modified by Reclamation to address safety concerns and to provide more storage capacity. The modifications, started in 1994, included a second unlined auxiliary spillway 1,500 feet south of the dam's left (south) abutment, along with a concrete control structure and three-segment fuse plug embankment with training dikes. It is a non-contributing structure. The dam was raised 21.5 feet, from its original height of 287 feet to 308.5 feet to prevent overtopping. The walls and bridge of the existing service spillway structure were also modified. The 1996 modifications to the crest of the dam and spillway are visible as a change in concrete coloring, but do not materially affect the physical integrity of the dam's unique multi-arch design or compromise Bartlett Dam's historic integrity.

Maricopa, AZ County and State

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

Χ	

А

Property is associated with events that have made a significant contribution to the broad patterns of our history.



x ^C

Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

Property has yielded, or is likely to yield, information important in prehistory or history.

Areas of Significance

(Enter categories from instructions)

Politics/Government

Engineering

Community Planning and Development

Period of Significance

1936-1939

Significant Dates

1936–1939 – Bartlett facility built

Criteria Considerations

(Mark "x" in all the boxes that apply)

Property is:

D

Significant Person

(Complete only if Criterion B is marked above)

А	owned by a religious institution or used for religious purposes.
В	removed from its original location.

Cultural Affiliation

C a birthplace or grave.

- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years old or achieving significance within the past 50 years.

Architect/Builder

U.S. Bureau of Reclamation

Raymond Hill (Salt River Project)

Barrett, Hilp, and Macco Corporation

Period of Significance (justification)

The period of significance (1936–1939) reflects the original construction period of Bartlett Dam.

Statement of Significance Summary Paragraph

Bartlett Dam qualifies for the National Register of Historic Places under Criteria A and C. Under Criterion A, it is associated with the evolution of the Project, one of the first five federally-sponsored western water projects authorized under the National Reclamation (Newlands) Act of 1902. This act created the United States Reclamation Service (renamed the Bureau of Reclamation in 1923), whose purpose was to design and construct storage and irrigation projects to aid in the settlement and economic development of western America's arid lands. With the Reclamation Service's creation, the federal government assumed a lead role in developing large-scale western water projects. The Salt River

Bartlett Dam	
Name of Property	

Project is one of the agency's flagship engineering efforts. As part of the Project, it is also associated with the growth of central Arizona's agricultural economy and provides supplemental water for urban-municipal, agricultural, and Indian reservation use in the Salt River Valley. Under Criterion C, Bartlett Dam is an example of the multiple-arch, hollow buttress method of dam construction, which was innovative at the time of construction and was Reclamation's first dam constructed using this approach. It also employed several design and load analysis methods not used in previous multiple-arch dams. The Bartlett Dam meets the Registration Requirements set forth in the Salt River Project MPS for Property Type I: Storage-Regulation Dams.

Narrative Statement of Significance

Under Politics and Government, Bartlett Dam is significant in that, as the Salt River Valley Water Users' Association (Association) attempted to develop the Verde River, it faced opposition from independent irrigation districts that had competing interest for use of the water in the Verde River. Earlier organizations had struggled to divert water from the Verde River with no success. Of all the legal and political battles associated with the Project's expansion, the construction of Bartlett Dam was one of the most contentious because these irrigation districts wanted water from the Verde River while the Association believed its shareholders had prior rights to the Salt River tributary.

Under Engineering, Bartlett Dam is significant in that it was the first multiple-arch, hollow buttress dam constructed by Reclamation, and at the time it was built, it was the highest dam of this design in the United States. Bartlett Dam has several specific features that did not exist in other multiple-arch dams at its time of construction. These were: 1) design of the arches as cylindrical, full half-circles analyzed by the trial-load method of analysis; 2) curvature, in plan, of the upstream dam face to better fit local topographic conditions, and 3) the design and use of hollow-type buttresses to reduce construction costs. Originally 287 feet high at the time of its 1939 completion, Bartlett Dam was raised 18 feet (to 305 feet) in the 1990s to address dam safety and overtopping concerns, and to provide increased storage.

Under Community Planning and Development, Bartlett Dam is significant for expanding the water and hydropower supplies that could be used for irrigation and for industrial and community development in the Phoenix Basin. Completion of Bartlett and Horseshoe Dams allowed Project storage facilities to capture the waters of both the Salt and the Verde Rivers. This significantly increased water supply for use by the Project, and also provided additional flood protection to the cities of the greater Phoenix area. Furthermore, storing the waters of the Verde River allowed for increased flexibility in the timing of releases of water from Roosevelt Dam. The ability to generate hydropower at the Sate River dams had been limited because waters stored behind Roosevelt Dam had to be used for irrigation purposes, and so could be released only during the irrigation season. After Bartlett Dam was constructed, water could be released from Roosevelt Dam throughout the year for hydropower purposes, and the water released out of season could be replaced with water stored at Bartlett.

Developmental history/additional historic context information

The first known use of Verde River water by non-Native Americans was by Fort McDowell soldiers in the 1860s and 1870s. In 1889 the Rio Verde Canal Company, later incorporated in 1892 by evangelical Christians from Minneapolis, planned to use water from the Verde River to irrigate 400,000 acres of land for agriculture in Paradise Valley, north of Phoenix. Their vision was to transform central Arizona into an agricultural paradise. The ambitious plan was drafted by engineer Donald S. Campbell. He proposed to construct a dam at Horseshoe site, a diversion dam downstream, sixty-nine miles of canal, and hydropower sites at canal drops. He also wished to place storage dams on the New, Verde, Agua Fria, and Hassayampa rivers, and construct additional distribution canals. Even before the ink had dried on Campbell's \$2 million plan, construction had already started on the site of the diversion dam. By 1892 the Rio Verde Canal Company had excavated a 715-foot-long tunnel to direct water from the proposed diversion site, and excavated about 18 miles of canal, all at a cost of about \$50,000. Plans also called for the completion of the Horseshoe facility and the canals by 1897.

Engineering and economic realities bankrupted the project, much like other privately-funded storage and irrigation attempts across western America. To make matters worse, a crippling national depression in the mid-1890s dashed all hopes of raising the construction capital needed to complete the project. As a result, the Rio Verde Canal Company became insolvent, only to be taken over by a group of Cincinnati investors under a new name, the Verde Water and Power Company. Their Paradise Valley reclamation plan was to build a dam on the New River and a canal on the west side of the project that would eventually tie in with Rio Verde's partially excavated canal on the east side.

> See Section 8 Continuation Sheet <</p>

9. Major Bibliographical References

Bibliography

Please see SRP MPL Cover Document, Section I, for a comprehensive bibliography

Previous documentation on file (NPS):	Primary location of additional data:
preliminary determination of individual listing (36 CFR 67 has been	State Historic Preservation Office
requested	Other State agency
previously listed in the National Register	Federal agency
previously determined eligible by the National Register	Local government
designated a National Historic Landmark	University
recorded by Historic American Buildings Survey #	Other
x recorded by Historic American Engineering Record # AZ-25	Name of repository: Library of Congress on line catalog

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property 4.89 acres

UTM References (see Section 11 Continuation Sheet)

1	12	441528	3742181
	Zone	Easting	Northing

Verbal Boundary Description

The boundary is comprised of the historic dam structure proper only, including the outlet channel, gate house, spillway, and river outlet/valve house. The new auxiliary spillway, built in the 1990s and located 1,500 yards to the south of Bartlett Dam's left abutment is a non-contributing structure that is discontinuous from the dam proper.

Boundary Justification

The boundary is defined by the limits of the eligible structure consisting of the dam, the outlet channel, gate house, spillway, and river outlet/valve house. This is consistent with the boundary delineated for this cultural feature on the attached boundary map (Section 11, Page 2, Map 2).

11. Form Prepared By	
name/title Jim Bailey, Ph.D., Historian	
organization Bureau of Reclamation	date October 1, 2010
street & number 6150 West Thunderbird Road	telephone (623) 773-62631
city or town Glendale	state AZ zip code 85306
e-mail ljelinek@usbr.gov	

¹ All contact information is for the Phoenix Area Office Archaeologist.

Additional Documentation

Submit the following items with the completed form:

- **Maps:** An aerial map indicating the property's location.
- Continuation Sheets: 8 (context, photos) 11 (site map with UTMs and map showing the orientation of photographs)
- Additional items: None

Photographs:

Photo Log (See Section 8 Continuation Sheet)

Current Photographs

Name of Property: Bartlett Dam City or Vicinity: Carefree County: Maricopa State: Arizona Photographers: Jim Bailey, Bureau of Reclamation; Salt River Project Date Photographed: March 2010; May 2009 Location of Original Digital Files: Bureau of Reclamation, Denver, CO; Salt River Project, Phoenix, AZ Number of Photographs: 9

Photo 1 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0001) Bartlett Dam aerial shot looking east, photo by SRP.

Photo 2 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0002) Bartlett Dam looking east.

Photo 3 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0003) Bartlett Dam looking south toward left abutment.

Photo 4 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0004) Bartlett Dam looking north toward gate house.

Photo 5 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0005) Bartlett spillway gate house looking northeast.

Photo 6 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0006) Bartlett spillway looking west from gate house.

Photo 7 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0007) Bartlett Dam buttress detail looking east.

Photo 8 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0008) Bartlett Dam crest (buttress B3) detail.

Photo 9 of 9 (AZ_Maricopa County_Salt River ProjectMPS_Bartlett Dam_0009) Bartlett Dam river outlet works looking east. **Historic Photographs**

Name of Property: Bartlett Dam City or Vicinity: Carefree County: Maricopa State: Arizona Photographers: Salt River Project Date Photographed: 1920s, 1938, 1939 Location of Original Digital Files: Salt River Project, Phoenix, AZ Number of Photographs: 12

Historic Photo 1 of 12 View to the northeast of the contractor's camp with Bartlett Dam in the distance. Photo taken on February 20, 1939. Photo courtesy of the SRP.

Historic Photo 2 of 12 View from left abutment looking across toward right abutment. Photo taken on September 4, 1938. Photo courtesy of the SRP.

Historic Photo 3 of 12 General view looking upstream and toward right (south) abutment. Level part of trussed walkway is at elevation 1740. Buttresses 3 (on extreme left), 4, 5, 6, 7, completed to elevation 1690. Photo courtesy of the SRP.

Historic Photo 4 of 12 View of Bartlett Dam during construction from the left side. Pumpcrete pipe lines are carried on walkway. Upstream parts of buttresses (in the right of photo) are being fog-sprayed to permit proper filling of contraction joints. July 30, 1938. Photo courtesy of the SRP.

Historic Photo 5 of 12 View of aggregate processing plant and aggregate deposit. Photo taken August 31, 1938. Photo courtesy of the SRP.

Historic Photo 6 of 12 Looking upstream between buttresses 8 and 9, at completed outlet channel paving. Needle valve outlets at right. Photo taken September 9, 1938. Photo courtesy of the SRP.

Historic Photo 7 of 12 Looking downstream toward three 50 by 50 foot spillway gates. Photo taken September 20, 1938. Photo courtesy of the SRP.

Historic Photo 8 of 12 Looking downstream toward right abutment. Crown of highest arch is within eight feet of top of dam. Photo taken September 29, 1938. Photo courtesy of the SRP.

Historic Photo 9 of 12 Upstream view of Bartlett Dam. Photo taken October 31, 1938. Photo courtesy of the SRP.

Historic Photo 10 of 12 Looking upstream toward left abutment. Note forms for left gravity abutment at upper right corner of picture. Photo taken November 29, 1938. Photo courtesy of the SRP.

Historic Photo 11 of 12 A close-up of completed arches adjacent to right gravity abutment. Note parapet wall and flashboard inserts on arch 2. Photo taken February 1939. Photo courtesy of the SRP.

Historic Photo 12 of 12 William Bartlett, photographer unknown, circa late 1920s. Bartlett Dam and Bartlett Lake bears his name. Photo courtesy of Carl Moore.

Name of Property

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, PO Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

National Register of Historic Places Continuation Sheet

Bartlett Dam
Name of Property
Maricopa, AZ
County and State
Salt River Project
Name of multiple listing (if applicable)

Section number <u>8</u> Page <u>1</u>

Context continued

These ambitious plans were usurped by the Federal government in 1901. Before Verde Water and Power Company could get rolling, the Department of Interior (Interior) withdrew large amounts of acreage within the Salt and Verde watersheds to protect forested watersheds from extensive sheep grazing. By 1908, 2.45 million acres had been withdrawn to create the Tonto Forest Reserve. While these withdrawals protected the watersheds, they prohibited Verde Water and Power from developing their dam sites within the withdrawn area. Land withdrawals were also precipitated by the newly-formed Reclamation Service, which wanted to protect potential dam sites on the Salt and Verde Rivers for the Project.

An economic depression and federal land withdrawals by Interior caused setbacks to Verde Water and Power's development plans. However, Verde Water and Power's leader, John Hudson, attempted to convince potential investors about the merit of obtaining water rights and developing an irrigation project on the Verde River that would that would allow settlement and the establishment of farming in the valley.

Hudson and Verde Water and Power attorney J. K. Doolittle advocated the development scheme with the federal government well into the late 1910s with Doolittle arguing that the tunnel and excavation work done at Horseshoe site demanded \$300,000 worth of just compensation if Interior wished to take it over. Conversely, the government had much different opinions than Hudson or Doolittle. The government concluded that compensation for previous work was unfounded because the tunnel, by 1912, had filled with mud and was deemed useless, and that the canal was only excavated in patches, and was not connected to a water supply. In 1917 the Reclamation Service's Director Arthur Powell Davis, concluded that the matter of just compensation was considered closed. It is believed that the federal government obstructed private development on the Verde River in order to ensure the successful development of 250,000 acres it wished to irrigate under the Project. Other events demonstrated the federal government's efforts to obstruct Hudson's aggressive scheme. In 1909, they withdrew Verde Power and Water's right-of-way to build at the New River Dam site, and in 1910, the Kent Decree, which established water rights for the majority of lands in the Salt River valley, did not grant Hudson's company any water rights. Two years later, a federal judge ruled that since no improvements were made at the Horseshoe or any other proposed Verde Water and Power site or canal, all rights-of-way were to be forfeited to the federal government.

In the 1920s Hudson and Doolittle continued their attempts to secure water rights. Another obstacle to them was the Salt River Valley Water User's Association (Association), created by Salt River valley farmers who pledged to repay the Project's costs. The Association initiated plans on the Verde River to supplement water stored by Theodore Roosevelt Dam (Roosevelt Dam). Studies completed in the early 1910s concluded that Lake Roosevelt's maximum storage capacity of 1.2 million acre-feet was inadequate to water the 250,000 acres planned for irrigation development. In 1914, a Board of Survey was formed to study the development, and concluded that another storage facility on the Verde River would be needed to meet the Association's goals. However, shortly before the Association filed for water rights, another private concern, the Paradise Verde Water User's Association (Paradise-Verde, or P-V),filed a claim in November 1916 to irrigate lands in Paradise Valley not served by the Project's Arizona Canal.

The result was a decade-long Association vs. Paradise-Verde legal battle over water rights on the Verde River, all while the efforts of Hudson and Doolittle continued. Association attorneys argued that the Project needed Verde River water to make up a 23,000 acre deficiency not covered by Roosevelt Dam, along with another 6,300 acres of Salt River Indian Reservation lands. The Association felt compelled to deliver water to the reservation under a 1917 conveyance agreement with the Reclamation Service. Only the development of the Verde River could round out and complete the Project as intended. Litigation continued, but in May 1920 a preliminary agreement was reached between both parties. Generally, it called for Paradise-Verde to construct dams at Horseshoe and Camp Verde on the Verde River, as well as dams on the New River, Skunk Creek, and Cave Creek north of

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Phoenix, with three years to acquire the financing and proceed with construction. The agreement also permitted the Association to take over the Verde project provided that the Association permitted Paradise-Verde to have representation on the Association's board. However, the Association's ten Board of Governors never approved it, claiming that Paradise-Verde, now an irrigation district for tax purposes, had not negotiated, but dictated, the agreement's terms.

The City of Phoenix (City) decided to ignore the dispute between the Association and Paradise-Verde. The City intended to develop Verde River water to support economic growth and development of the city. Between 1890 and 1920 the City experienced a nearly ten-fold growth in population from 3,100 to 30,000 residents. By 1920 it was Arizona's largest city. Since water was intended primarily for agricultural use, the increasingly commercialized City needed to upgrade its municipal water infrastructure. Although the City had studied a gravity-pipe system from the Verde River as early as 1906, nothing happened until 1919 when voters approved a \$1.3 million bond issue for the system's construction, which began in 1920. The City justified its claim for Verde River water by assuming the normal flow rights of town site and decreed lands which were receiving water through the City's system and not the Project. In 1922, the river intake works, 28 miles of wood stave pipeline, 2.5 miles of concrete pipe, a reservoir site, and chlorination plant were completed, delivering 6 million gallons of water per day to the city (in 1931 the supply line was rebuilt, replacing the wood stave pipeline with a concrete one that increased the capacity to 30 million gallons per day). Yet the base dispute of building a water storage dam on the Verde River was no closer to resolution. It took another 14 years before the matter was settled.

From 1920 to 1934, the litigation continued between the Paradise-Verde, which was renamed the Verde River Irrigation and Power District (VRIPD) and the Association. While the VRIPD raised some money through bond sales, the three year window that was granted by Interior Secretary Payne closed before enough funds were raised. The VRIPD was granted several extensions by Secretary Payne and his successor, Albert Fall. In March 1923, one month after giving the first six and nine month extensions, Fall was replaced by Hubert Work, who gave the VRIPD until February 1925 to raise the capital needed through bond sales. This, however, was still not enough time. The VRIPD's inability to secure financing was due primarily to a severely-depressed post-World War I national farming economy. National brokerage and bond houses were reluctant at the time to finance irrigation projects. Even the federal government was forced to reevaluate its reclamation policies (culminating in Reclamation's Fact Finders Act of 1924, which required comprehensive feasibility and planning studies before any new project could be built).

With encouragement from Secretary Work, negotiations continued between the VRIPD and the Association. Work granted the VRIPD a fourth and final extension, under the condition that all parties would have to meet before the U.S. Senate Committee on Irrigation in Phoenix (Committee) in mid to late 1925. If the Committee ruled against the VRIPD, it would have no title to the public lands needed to construct its project. In reality, it was actually a subcommittee that met with both sides in late November 1925. The VRIPD argued generally that the Association only had normal flow rights to the Verde River, that there was sufficient flood water for the VRIPD to develop over 100,000 Paradise Valley acres, and that the Association was attempting to undermine VRIPD plans. The Association countered that the VRIPD had failed to raise sufficient capital, that it could in no way come close to irrigating 100,000 acres, and that the Association's agreements with other irrigation projects were necessary in order to relieve waterlogged Project lands that were suffering from poor drainage and resultant high water tables. The Association also argued that when they received operational control in 1917, they were given the right to develop Verde River water for the purposes of completing the Project. Other concerns, including the City and the Deer Valley Protective Association, testified in support of the Association.

The subcommittee ruled that the VRIPD's chances of raising more capital, given the national farm economy, was near nil, and if the VRIPD could irrigate 100,000 acres, it would result in long, protracted legal battles with the Association. They also concluded that the valley's business and agricultural communities would not be best served by the interests of the VRIPD. Two months later, Secretary Work reaffirmed his order. The fund raising

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extensions had expired, and the VRIPD found itself without title to the public lands needed to construct its project.

Despite these obstacles the VRIPD persisted with their campaign. They were met with more negative rulings. It was apparent the only way their situation could be resolved was to develop a cooperative agreement between the Association and the VRIPD. In 1927 and 1928, a preliminary contract to build the Verde Project was developed between the Association, the VRIPD, and the Reclamation Service. It stipulated that all parties would collectively determine the amount of acreage needed to be watered under the proposed project (the Reclamation Service determined the final number to be 84,000 acres) plus the amount of water needed to irrigate the Salt River Indian Reservation, which the federal government was obligated to provide. The contract also exempted the Association from any financial obligation to construct this project, and conveyed operation and maintenance (O&M) responsibilities to the Association. All parties agreed, and on June 19, 1928, Secretary Work, the Association, and the VRIPD penned the agreement pending shareholder approvals by both parties. Six months later, VRIPD voters approved the agreement, but it took over a year for approval from the Association's shareholders. The agreement was disapproved by a narrow seven-to-six vote margin.

There are several reasons why the Association's shareholders disapproved of the agreement. The Association leadership may not have advocated for the agreement as aggressively as it did for the construction of the three hydropower dams on the Salt River it built in the 1920s (Horse Mesa Dam, Mormon Flat Dam, and Stewart Mountain Dam). The Association did not conduct extensive public hearings on the Verde River issue. In addition, there may have been resentment felt by valley irrigators who considered that Verde River water rights already belonged to the Association. In 1929 there was also a severe drought that may have raised concern about water supply and Roosevelt Lake had dried up completely the year before. Thus Association shareholders did not favorably view any agreement to store Verde River water for use by other entities.

The VRIPD refiled their right-of-way application to Secretary Work's successor, Ray Lyman Wilbur, who granted the VRIPD five years to develop the project before the Association could make a substantive objection. His reasoning was based on the Association's uncooperative behavior in rejecting the 1928 agreement, that the Association was purposely obstructing the VRIPD, and Reclamation's obligation to provide water to the Salt River Indian Reservation. Although the Association appealed to Secretary Wilbur, he denied them a hearing on the matter. As a result, the Association's attorneys and shareholders had three options: do nothing, compromise, or challenge the VRIPD's water rights.

While they chose the latter, the VRIPD's plans suffered after the stock market crash of 1929. Without investors the VRIPD had no chance of raising construction funds through the sale of construction bonds. Because private financing was impossible after 1930, federal funding became the only way to finance and build the project. The VRIPD seized onto this possibility aggressively, enlisting the help of Arizona Senators Henry Ashurst and Carl Hayden, as well as Arizona Governor Benjamin Moeur, to help fulfill the federal government's obligation to provide water for the Salt River Indians and to consider the Verde Project as a work relief project. Ashurst unsuccessfully tried to secure a \$5 million loan through President Herbert Hoover's newly-created Reconstruction Finance Corporation (RFC). When President Hoover lost the presidential race to Franklin D. Roosevelt, Ashurst and Hayden went to President Roosevelt to petition for federal support for the VRIPD.

But before any federal monies could be made available, a study was ordered. This time, Reclamation Commissioner Elwood Mead appointed two of his engineers to the study. They concluded that new facilities could be built by the government on the Verde River, and could help irrigate 94,000 Paradise Valley acres, but only if they could produce hydropower to help defray costs. The VRIPD applauded, while the Association protested. The Association voiced their opposition at a public hearing in Phoenix in August 1933. Yet it was also apparent that the Association was divided. Not all members opposed the VRIPD's plans or the study's findings. New Association board members, including the president and governing council were less hostile to the VRIPD.

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However, many of the Association's shareholders were split on their support of the VRIPD's plans. Various Association resolutions that soon followed illustrated this division and dissension, with some members opposed, and some supportive. A Reclamation Service engineer who took part in the study, Porter Preston, was not impressed by the Association's lack of internal consensus, and pointed to the fact that the Association had never presented a plan to the Reclamation Service to develop the Verde River. The VRIPD was hopeful that the internal dissension within the Association could work in its favor. Arizona's political leaders continued to advocate to President Roosevelt the need for federally sponsored public works projects to help the state's increasing unemployment numbers, using the construction of the Hoover Dam as an example.

Much to the VRIPD's delight, Interior Secretary Harold Ickes announced the Public Works Administration would send \$18.2 million to the Reclamation Service to construct the project. As the Reclamation Service was busy establishing a field office in Phoenix, the Association's protests became even louder. The Association drew up plans to construct its own dam at the Bartlett site, the one furthest downstream. In addition, the Association filed another lawsuit against the VRIPD and the federal government, this time with the Buckeye Irrigation Company and the Arlington Canal Company as co-plaintiffs, because they were as dependent on Salt River water as the Association. Adding to the complexity of the situation was the Reclamation Service's findings that the Camp Verde dam site was not suitable, and that Camp Verde residents opposed any kind of dam inundating their lands, despite receiving financial compensation.

While these legal and technical problems did not derail the project, three other factors worked harder to do so. One was the collapse of Arizona's electrical market due to the rapid post-1929 demise of the state's mining economy. Another was an extended drought that weakened the validity of all Verde River water supply studies. Another was the argument that farm prices would only recover if acreage production was strictly regulated. The demise of the state's mining economy was the greatest obstacle because of the loss of revenue that would have been generated by hydroelectric power sales to the mining companies, who were the state's and the Association's largest electrical customers. As mining production plummeted from \$155 million in 1929 to \$23 million in 1934, so too did electrical consumption. Because of the severely diminished power receipts and lower crop values, the Association failed to meet its repayment obligations during this period. If the Association could not sell its power or finance its debt, it was highly unlikely the VRIPD could as well.

One month before Interior Secretary Ickes authorized the VRIPD's loan, the Secretary of Agriculture Henry A. Wallace criticized the development of additional irrigated acreage under the Verde project, citing larger national needs and priorities, and did not want to add irrigated acreage at a time when the federal government was attempting to reduce cultivated lands. Wallace's comments were the kind of inspiration the Association needed, and they jumped on the opportunity. They invited Wallace to Arizona, which further convinced him that the project was unnecessary. All of these factors, plus the drought that had plagued Arizona since 1927, lead to the Reclamation Service's Commissioner, Ellwood Mead to reconsider the Verde project.

Soon after, Mead requested that the Reclamation Service Engineer E. B. Debler conduct a feasibility study and prepare a report. Debler's report contained information that the Verde project was "not feasible," based on the fact that groundwater pumping had added a significant amount of acreage dependent on the Project. It also reported that the Project was better able to handle excess Verde River water due to the storage provided by Roosevelt Dam and the three hydropower dams downstream built in the 1920s. Debler also calculated that the Verde project could develop only about 50,000 acres at a cost of \$472 per acre, \$310 more per acre than the Public Works Administration estimated. He also recommended that if the project was developed, only the dam at Bartlett site should be built; if dictated by future demand, another storage site further upstream could be investigated. Once Commissioner Mead read Debler's report, he no longer supported the Verde project. The construction cost was estimated at \$25 million, as opposed to \$11 million estimated by the Public Works Administration, which jeopardized any chance the VRIPD had of developing the project.

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Immediately, the Association seized the opportunity and quickly petitioned the federal government for funds to build Bartlett Dam and to perform spillway repairs at the other four facilities. The Association President, Lin Orme argued that the work would keep federal monies in Arizona and provide work for unemployed Arizonans. Arizona's Washington leadership and Governor Moeur, who once sided with the VRIPD, shifted their positions to support the Association and Bartlett Dam's construction. On October 4, 1934, Secretary Ickes delivered the final blow to the VRIPD by rescinding its Ioan, basing his decision on Debler's report, the depressed state of Arizona's electrical market, and that the Verde project could not meet the Public Works Administration's requirement to repay the Ioan on time. The VRIPD protested, however, Secretary Ickes' decision was final, which provided the Association with the opportunity to move forward. The Reclamation Service would build Bartlett Dam for the Project.

Bartlett Dam became the fifth and final multiple-arch dam built in Arizona, after Gillespie, the nearby Cave Creek (which closely resembles Bartlett), Coolidge, and Waddell (originally named Carl Pleasant). The design was selected because it offered financial incentives. While the multiple-arch design required more labor than conventional dams due to its sophisticated concrete forms, this was seen as an advantage in work-depressed Arizona. Hollow and thin buttresses and arches required less material, which resulted in cheaper freight costs. Originally designed by the Association's consulting engineer Raymond Hill, the final design was completed by Reclamation Construction Engineer Edward C. Koppen. It would be Reclamation's first attempt at a multiple arch, hollow-buttress design. When completed, it would be the highest dam of this type in the United States. It also contained some unprecedented design and construction features, including cylindrical full half-circle arches, a design that allowed it to curve upstream to fit the topography. Buttresses were built with contraction joints, 18inch saw tooth openings, that were later filled after the heat of setting had dissipated. This was done to avoid the cracking problems that plagued Waddell Dam. Each buttress also included, at 41 foot vertical intervals, two 18inch stiffener walls between sides. No hydropower facilities were included, probably due to insufficient funds in the contract, Arizona's depressed electric market, the four Salt River dams that already provided this capability, and perhaps most importantly, unreliable Verde River flows. Design work for Bartlett Dam was completed in spring of 1936.

Shortly thereafter, bids were opened for construction. The low bidder was Barrett, Hilp, and Macco Corporation (contractor) of Clearwater, California, who submitted a bid of \$2,228,272. On August 12, the contractor was awarded the contract under the specification that they complete the work in 1,000 days, or by May 9, 1939. Once arriving in Arizona, the contractor built roads around the site and a construction camp (the Association constructed the site's primary access road and a 16.75 mile long transmission line months earlier, shortly after Secretary Icke's final decision.) The contractor's camp housed two hundred men and fifteen families in various kinds of dormitories. At the same time, the Reclamation Service built a camp for their personnel, which included a phone system to connect with Phoenix.

The first construction task was to prepare the canyon walls at the construct site. This work was followed by excavation of the spillway channel and the foundations for the gravity sections. By the end of 1936 the stripping of the abutments and exposure of the granite bedrock was nearly complete. Two faults in the bedrock were uncovered. Other than being sources of water seepage, they did not cause much concern. Spoil from the excavation work would be used to build the cofferdams that would help keep water away from the primary construction site when actual dam construction began in 1937. A total of 61,700 cubic yards of earth and rock were excavated from the spillway and 44,000 cubic yards of spoil were removed from the river bed that year. Also completed by year's end was an aggregate processing plant and the concrete mixing plant, which were built one mile below the dam site. By year's end, 8.3 percent of the dam's construction had been completed, much to delight of the Reclamation Service and the Association.

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The winter of 1936-1937 produced enough snow to end the decade-long drought. Dense snowpack on the Verde River watershed, coupled with heavy spring rains, resulted in the river cresting at 62,500 cfs, the highest ever recorded level, with more floods that measured around 33,000 cfs later that spring. The river normally flowed around 500 cfs on average. This created hardships for the contractor, who spent most of the year drying out and re-excavating abutments and foundations, and rebuilding cofferdams. Because of the flooding, most efforts failed until the contractor rechanneled the river by building two cofferdams upstream and downstream of the site, to divert the river through six-foot steel pipes. More difficulties were encountered in dewatering excavated areas below river line, but the Association installed several deep well turbines to pump the excess water. When not trying to control the raging river, the contractors excavated all of the buttresses, trimmed the spillway sidewalls, and removed overburden from the abutment down to the top of the cut-off trenches and buttress footing trenches. Simultaneously a subcontractor performed grouting and filling work to firm up the dam's foundation. By the end of 1937 the dam had not even reached stream bed elevation; only 51,000 cubic yards of concrete had been placed, and 38 percent of the work completed.

Despite another massive flood on March 4, 1938, that measured 108,000 cfs at peak flow, work progressed on the dam. The spring flood did little damage because all the arches were above the stream bed. Despite losing some time, the contractor had few worries because they had insured themselves for flood damages. The rest of the year was spent placing concrete to heighten the buttresses and arches. By the end of 1938, the contractor had poured 122,446 yards of concrete with only an estimated 7,720 cubic yards remaining to complete the dam. But as the flooding created delays, the contractor looked for innovative ways to speed up construction to meet the 1,000 day window. They discovered a faster process to pour concrete for consecutive or adjacent arches instead of working either side of the dam. The contractor also used a light mist fog spray to help cool the curing concrete, something they had to clear with Reclamation before doing so. Buttress and arch work forms were steel, except for those used at the lower elevations, where timber forms were used for the gravity sections and parts of the spillway. Some of these forms weighed as much as 38 tons, and were raised from a ten-ton cableway that spanned 1,140 feet across the canyon.

Despite wet weather and floods Bartlett Dam was completed in May 1939, in time for the contractor to meet the 1,000 day deadline. Additionally, the final cost was approximately \$270,000 less than estimated. The structure's innovative design, use of fog mist to pour concrete in hot weather, and use of low-heat cement resulted in a nearly-flawless monolithic structure.

In October 1939, Reclamation turned over operations and maintenance of Bartlett Dam to the Association. Operation of Bartlett was provided for under a June 3, 1935, contract signed between the Association and the United States. Under its 1917 contract with the federal government, the Association had agreed to cooperate in providing water for 6,310 acres for the Salt River Pima Indians, in lieu of twenty percent of the dam's construction cost paid for by the federal government. This provided an allocation of the dam's storage capacity for the Salt River Indian Reservation. The Association agreed to pay the remaining eighty percent, and be responsible for operations and maintenance on the dam ¹

¹ Narrative (and construction photos that follow) excerpted from David Introcaso, *Bartlett Dam: Historical American Engineering Record HAER No. AZ-25* (San Francisco, National Park Service, 1990.) Please see SRP MPL Section I for a comprehensive bibliography.

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Current Photographs

Name of Property: Bartlett Dam City or Vicinity: Carefree County: Maricopa State: Arizona Photographers: Jim Bailey, Bureau of Reclamation; Salt River Project Date Photographed: March 2010; May 2009 Location of Original Digital Files: Bureau of Reclamation, Denver, CO; Salt River Project, Phoenix, AZ Number of Photographs: 9



Photo 1. Bartlett Dam aerial shot looking east, photo by SRP.

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Photo 2. Bartlett Dam looking east.

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Photo 3. Bartlett Dam looking south toward left abutment.

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Photo 4. Bartlett Dam looking north toward gate house.

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Photo 5. Bartlett spillway gate house looking northeast.

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Photo 6. Bartlett spillway looking west from gate house.

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Photo 7. Bartlett Dam buttress detail looking east.

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Photo 8. Bartlett Dam crest (buttress B3) detail.

NPS Form 10-900-a (Rev. 8/2002)

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Photo 9. Bartlett Dam river outlet works looking east.

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Historic Photographs

Name of Property: Bartlett Dam City or Vicinity: Carefree County: Maricopa State: Arizona Photographers: Salt River Project Date Photographed: 1920s, 1938, 1939 Location of Original Digital Files: Salt River Project, Phoenix, AZ Number of Photographs: 12



Historic Photo 1. View to the northeast of the contractor's camp with Bartlett Dam in the distance. Photo taken on February 20, 1939. Photo courtesy of the SRP.

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Historic Photo 2. View from left abutment looking across toward right abutment. Photo taken on September 4, 1938. Photo courtesy of the SRP.

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Historic Photo 3. General view looking upstream and toward right (south) abutment. Level part of trussed walkway is at elevation 1740. Buttresses 3 (on extreme left), 4, 5, 6, 7, completed to elevation 1690. Photo courtesy of the SRP.

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Historic Photo 4. View of Bartlett Dam during construction from the left side. Pumpcrete pipe lines are carried on walkway. Upstream parts of buttresses (in the right of photo) are being fog-sprayed to permit proper filling of contraction joints. July 30, 1938. Photo courtesy of the SRP.

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Historic Photo 5. View of aggregate processing plant and aggregate deposit. Photo taken August 31, 1938. Photo courtesy of the SRP.

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Historic Photo 6. Looking upstream between buttresses 8 and 9, at completed outlet channel paving. Needle valve outlets at right. Photo taken September 9, 1938. Photo courtesy of the SRP.

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Historic Photo 7. Looking downstream toward three 50 by 50 foot spillway gates. Photo taken September 20, 1938. Photo courtesy of the SRP.

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Historic Photo 8. Looking downstream toward right abutment. Crown of highest arch is within eight feet of top of dam. Photo taken September 29, 1938. Photo courtesy of the SRP.

NPS Form 10-900-a (Rev. 8/2002)

OMB No. 1024-0018

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Historic Photo 9. Upstream view of Bartlett Dam. Photo taken October 31, 1938. Photo courtesy of the SRP.

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Historic Photo 10. Looking upstream toward left abutment. Note forms for left gravity abutment at upper right corner of picture. Photo taken November 29, 1938. Photo courtesy of the SRP.

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Historic Photo 11. A close-up of completed arches adjacent to right gravity abutment. Note parapet wall and flashboard inserts on arch 2. Photo taken February 1939. Photo courtesy of the SRP.
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Historic Photo 12. William Bartlett, photographer unknown, circa late 1920s. Bartlett Dam and Bartlett Lake bears his name. Photo courtesy of Carl Moore.

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Map 2. Boundaries of contributing and non-contributing structures at Bartlett Dam.

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Map 3. Bartlett Dam showing the orientation of photographs taken by Jim Bailey in 2009 and 2010.













































UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION/RETURN SHEET

Requested Action:	Nomination		
Property Name:	Bartlett Dam		
Multiple Name:	Salt River Project MPS		
State & County:	ARIZONA, Maricopa		
Date Rece 6/23/20			
Reference number:	MP100001406		
Nominator:	State		
Reason For Review			
X Accept Abstract/Summary Comments:	ReturnReject <u>8/7/2017</u> Date The Bartlett Dam is of statewide significance under National Register Criteria A and C in the areas of Politics/Government, Engineering, and Community Planning and Development. Constructed in 1936-1939, the curved, multi-arch dam is an excellent illustration of the innovative irrigation and municipal water storage infrastructure resources built under the		
	Bureau of Reclamation as part of the Salt River Project (SRP)one of the first five federally sponsored western water projects. Representing Reclamation's first use of multi-arch, hollow-buttress construction, the dam served as an important expansion of the Salt River Project's water storage capabilities in service of hydro-power, irrigation, and municipal supply operations. The resource meets the Registration Requirements of the SRP MPS.		
Recommendation/ Criteria	Accept National Register Criteria A and C.		
Reviewer Paul Lu	Discipline Historian		
Telephone (202)3	54-2229 Date 8/7/2017		
DOCUMENTATION	see attached comments : No see attached SLR : No		

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.



IN REPLY REFER TO

84-53000 ENV-3.00

United States Department of the Interior

BUREAU OF RECLAMATION P.O. Box 25007 Denver, CO 80225-0007 JUN 2 0 2017

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MEMORANDUM

To: J. Paul Loether, Chief, National Register of Historic Places Program, National Park Service, 1201 Eye Street, NW (2280), Washington, DC 20005 Attn: Mr. Paul Lusignan

Roseann Gonzales Greann Jonegler Director, Policy and Administration From:

Subject: Nomination of the Salt River Project (Project), Maricopa County, Arizona, as a Multiple Property Listing (MPL) in the National Register of Historic Places (National Register), and Nominations of Associated Properties under the MPL

The Bureau of Reclamation is pleased to nominate the Salt River Project as an MPL on the National Register. We are concurrently individually nominating five associated Project dams, and nominating the Project's diversion and conveyance system as a historic district. The multiple property documentation (MPD) form and associated property registration forms, with supporting information, are attached. All forms are submitted in electronic format on the two enclosed compact disks, with the required hard copy of the original signature sheet for each of the six property nomination forms. In order to provide an original signature for both the Federal Preservation Officer (FPO) and the State Historic Preservation Officer (SHPO), two copies of each signature page is attached. As is also required, I confirm that the enclosed compact disks contain the true and correct nomination forms for the Salt River Project MPD; for the Salt River Project Diversion and Conveyance System Historic District; and for Bartlett Dam, Horse Mesa Dam, Horseshoe Dam, Mormon Flat Dam, and Stewart Mountain Dam.

The nomination forms were submitted for review to the Arizona SHPO and the SHPO signed the forms without comment. In Arizona, the State Review Board does not review Federal nominations. Reclamation provided all seven forms to Maricopa County for review by their Board of Supervisors, who are the chief local elected officials. The 45-day comment period closed on May 25 without Reclamation receiving comment from the County. Although not required for Federal nominations, Reclamation also provided the MPD and historic district forms to the six Certified Local Governments (CLG) established within the greater Phoenix metropolitan area; they were not provided with the dam nomination forms because the Project dams lie outside of the jurisdictional boundary of a GLG. The comment period closed with only the City of Glendale responding to say they had no comment at this time, and that they found the "materials were very well put together."

The Project and the associated properties are important pieces of Western reclamation history. Although some modifications have occurred to keep the structures operational, in large part the nominated properties retain levels of design, materials, workmanship, feeling, and overall integrity sufficient to convey their historic character and function. They demonstrate the historic importance of this irrigation and hydropower system that was instrumental in the transformation of the Phoenix basin into one of the great regional centers of the West.

If you have any questions, please contact Mr. George Herbst, FPO, at 303-445-3311, or <u>gherbst@usbr.gov</u>, or Ms. Lynne MacDonald, cultural resources specialist, at 303-445-3206, or <u>Imacdonald@usbr.gov</u>.

Attachments - 14

cc: Archeologist, Bureau of Reclamation, 500 Fir Street, Boulder City, NV 89006-1470, Attn LC-2633 M. Slaughter

Archeologist, Bureau of Reclamation, 6150 W Thunderbird Road, Glendale AZ 85306-4001 Attn: PXAO-1500 D. Gifford

Supervisory Environmental Protection Specialist, Bureau of Reclamation 6150 W Thunderbird Road, Glendale AZ 85306-4001 Attn: PXAO-1500 S. Heath

Archeologist, Bureau of Reclamation, 6150 W Thunderbird Road, Glendale AZ 85306-4001 Attn: PXAO-1500 L Jelinek,

(all w/o att)