

CHAPTER I

Purpose and Need

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This final environmental impact statement/ final environmental impact report (FEIS/FEIR) addresses the significant environmental issues and evaluates environmental consequences of the proposed All-American Canal (AAC) Lining Project.

The FEIS/FEIR is intended to meet the disclosure requirements of the National Environmental Policy Act and California Environmental Quality Act.

LOCATION

The project lies along a 29.9-mile section of the existing unlined AAC beginning just south of Pilot Knob and ending at Drop 4 where the canal enters the irrigated area of the Imperial Irrigation District (IID) in Imperial County, California (general location map). The section traverses the East Mesa and is bounded on the south by the international boundary with Mexico. The first 4 miles of this section lie about 300 feet from the international boundary, and the remainder lies between 1/2 and 3 miles from the boundary.

The 23-mile section proposed for lining begins 1.6 miles west of Pilot Knob, traverses Pilot Knob Mesa, Sand Hills (also known as Algodones Dunes), and East

Mesa, and ends at Drop 3. The remaining 6.9 miles are not included because of environmental conflicts.

The project would begin about 6 miles west of Yuma, Arizona, and end about 16 miles east of El Centro and Calexico, California.

PROJECT PURPOSE

The purpose of the AAC Lining Project is to conserve a portion of the water being lost through seepage. At present, an estimated 91,600 acre-feet¹ of water per year seep from the 29.9-mile unlined section of the AAC under study.

AUTHORIZATION

Project construction is authorized by Public Law (P.L.) 100-675, signed by the President on November 17, 1988. Title II of this legislation (attachment A) authorizes the Secretary of the Interior (Secretary) to line the unlined sections of the All-American and Coachella Canals, or pursue other means to recover the lost water. The law authorizes certain California water districts with Colorado River water delivery contracts to fund the project and gives Imperial Irrigation District (IID) the option of becoming the sole participating contractor for a period

¹ An acre-foot is the volume of water it would take to cover an acre of ground 1 foot deep, approximately 326,000 gallons. This is the amount of water an average family uses in and around the home in 2 years.

not to exceed 15 months after enactment. The conserved water is to be made available for consumptive use by the California districts within their service areas according to the priorities under existing Colorado River water delivery contracts (discussed under "Colorado River Priorities").

The Secretary also is authorized to replace incidental fish and wildlife values lost as a result of constructing a new canal or lining the existing canal. The Secretary is authorized to develop ground water, with a priority given to nonpotable sources, from public lands to supply water for fish and wildlife purposes associated with such measures.

WATER NEED

The conserved water is needed in the southern California coastal area. Even in years of average supply, sufficient water is not expected to be available to satisfy all requests for water in California. The last quarter century has been one of expansion and growth for southern California, reflecting the national trend of migration to the warmer climate and greater economic prosperity of the West and Southwest.

The population in the portion of the six-county² southern California area where the available conserved water could be used is expected to increase from 14.9 million in 1990 (1990 census) to 20.3 million by the year 2010. The accompanying water needs are expected to increase from the current 3.7 million acre-feet annually to 4.73 million acre-feet annually, assuming normal weather conditions.

The existing dependable water supply for the coastal area from all sources is projected at 3.51 million acre-feet in 2010. These sources include ground water, surface water, wastewater reuse, the Los Angeles aqueducts, the Colorado River, and the State Water Project. Thus, an estimated water shortage of 1.22 million acre-feet is projected by the year 2010.

Still higher needs can be expected in dry years in southern California when rainfall is below normal. Recently, California experienced a 6-year drought that included a water shortage of 540,000 acre-feet in 1991.

BACKGROUND

The Secretary was authorized to construct, operate, and maintain the AAC and to enter into water delivery contracts under the Boulder Canyon Project Act, P.L. 70-642, December 21, 1928. The existing AAC was constructed in the 1930's by the Bureau of Reclamation (Reclamation). Initial water delivery occurred in 1940. IID operates the AAC in accordance with a March 4, 1952, amendatory and supplemental contract between the Secretary and IID.

All-American Canal Water Conservation Planning

In 1963, Reclamation began to investigate the feasibility of lining the existing canal between Pilot Knob and Drop 4. However, at that time, the demands for river water were lower, and the project lacked economic justification and local support.

² Los Angeles, Ventura, Orange, San Bernardino, Riverside, and San Diego Counties.

In 1977, Reclamation initiated the Reject Stream Replacement Study to identify potential sources of replacement water for the Yuma Desalting Plant reject stream.³

Possible sources considered during the study included transbasin diversions, desalting sea water or other brackish water, recharging ground water and/or developing well fields, and lining a portion of the unlined AAC by constructing a parallel canal. That study concluded that the least-cost, implementable alternative for providing reject stream replacement water was lining the reach of the AAC from Pilot Knob to Drop 4 by building a new parallel canal. Based on this conclusion, a detailed planning study addressing the alternative was initiated in 1984.

In 1987, the Metropolitan Water District of Southern California (MWD), the major urban water supply agency in southern California, suggested that the future AAC Relocation Project become a water conservation project funded by, and for the primary benefit of, California agencies holding water delivery contracts with the Secretary. MWD indicated its interest in funding lining of the AAC, provided the conserved water made available could be used in the MWD service area, within the scope of established water priorities. After discussions among MWD, IID, Coachella Valley Water District (CVWD), Palo Verde Irrigation District, and other affected water agencies, these provisions were incorporated into P.L. 100-675.

Toward the end of the plan formulation phase of the AAC Relocation Study, Reclamation planners and designers developed an in-place lining method that would allow lining the existing canal

without taking it out of service. The in-place lining method formed the basis for additional project alternatives.

To test the in-place lining method, Reclamation, MWD, and CVWD funded a prototype project which was constructed in a 1.5-mile section of the Coachella Canal (also known as the Coachella Branch of the AAC).

Colorado River Priorities

The California Seven Party Agreement of 1931 set priorities for use of Colorado River water in California. Delivery of water under these priorities is provided by water delivery contracts with the Secretary. The parties and their priorities are shown in table I-1.

MWD has entered into contracts with the Secretary for delivery of 1.212 million acre-feet of Colorado River water and an additional 180,000 acre-feet of surplus water from the river at Lake Havasu. In 1963, the United States Supreme Court (Court) in its decision *Arizona v. California* apportioned use of 4.4 million acre-feet to California, 2.8 million acre-feet to Arizona, and 0.3 million acre-feet to Nevada. The Court permitted the Secretary to make available the unused apportionments of the respective States to the other respective States. The Court also allocated use of surplus water as follows: California—50 percent, Arizona—46 percent, and Nevada—4 percent.

MWD's basic priority to use 550,000 acre-feet of Colorado River water per year is within California's 4.4-million-acre-foot normal apportionment (Priority 4). The

³ The reject stream is the unusable brine from the desalting plant. The United States still needs a source of replacement water for the reject stream.

Table I-1.—Priorities in seven-party agreement and water delivery contracts

Priority	Description	Acre-feet annually
1	Palo Verde Irrigation District gross area of 104,500 acres of valley lands	} 3,850,000
2	Yuma Project (Reservation Division) not exceeding a gross area of 25,000 acres	
3(a)	Imperial Irrigation District and lands in Imperial and Coachella Valleys to be served by AAC	
3(b)	Palo Verde Irrigation District—16,000 acres of mesa lands	
4	Metropolitan Water District of Southern California for use on coastal plain	<u>550,000</u>
	Subtotal	4,400,000
5(a)	Metropolitan Water District of Southern California for use on coastal plain	550,000
5(b)	Metropolitan Water District of Southern California for use on coastal plain	112,000
6(a)	Imperial Irrigation District and lands in Imperial and Coachella Valleys to be served by the AAC	} 300,000
6(b)	Palo Verde Irrigation District—16,000 acres of mesa lands	
	Total	<u>5,362,000</u>

Court also assigned “present perfected rights” to use of water to a number of individuals, towns, and Indian tribes along the Colorado River. These present perfected rights, totaling 55,200 acre-feet per year, also lie within California’s 4.4 million acre-feet. Thus, use of water in accordance with the present perfected rights reduces the amount of water available to MWD.

MWD has priority to use an additional 662,000 acre-feet each year (Priority 5a and b). Under the *1970 Criteria for Coordinated Long Range Operation of Colorado River Reservoirs*, the Secretary determines how much water is to be allocated for use in Arizona, California, and Nevada and, thus, whether a surplus, normal, or shortage condition exists.

The conserved water from the AAC Lining Project would be made available for beneficial consumptive use by the California contractors according to their third, fourth, fifth, or sixth priority, as shown in table I-1. Thus, water not diverted by the agricultural water users would be available to MWD under Priority 4 or Priorities 5a and b.

WATER SYSTEMS INVOLVED

Imperial Dam is the point on the Colorado River at which water is diverted into the AAC. The AAC conveys water from the Colorado River for the Imperial and Coachella Valleys via the Coachella Canal.⁴ The 80-mile unlined canal, which roughly parallels the boundary with Mexico, begins at Imperial Dam on the Colorado River and ends at the Westside Main Canal in the southwestern corner of IID.

On the average, about 3.3 million acre-feet of water are delivered annually by the AAC.⁵ Flow is by gravity. Hydroelectric powerplants are located at four check structures (called drops) along the section of canal under investigation. The Coachella Canal, which diverts about 300,000 acre-feet of this total on average, is the only significant diversion along the AAC.

The AAC top width in the project area varies between 175 and 196 feet, and its depth at midchannel ranges from 9 to 16.6 feet, the deeper sections being found

upstream from the Coachella Canal turnout. Canal water surface area in the project area under full design flow is 665 acres. Channel bottom in the project area is characterized as shifting silt and sand, although there is some rock and gravel bottom in the Pilot Knob area.

The water to be conserved by the project would be transported to the southern California coastal area via the existing Colorado River Aqueduct. The Colorado River Aqueduct, owned and operated by MWD, extends 242 miles from Lake Havasu (behind Parker Dam) to its terminal reservoir, Lake Mathews, near Riverside, California. The Colorado River Aqueduct capacity is 1.34 million acre-feet per year.

RELATIONSHIP TO OTHER PROJECTS

Coachella Canal Prototype Lining Project

This prototype project was to test a new canal lining method on a 1.4-mile reach of the Coachella Canal between Siphons 14 and 15. This new lining method involves placement of a plastic and geotextile lining covered with a protective layer of concrete while the canal is still in service. The project was completed in March 1991.

⁴ The water is delivered in accordance with a December 1, 1932, contract between the Secretary and IID and an October 15, 1934, contract between the Secretary and CVWD.

⁵ Annual amount fluctuates. Amounts in 1992 were 2,572,659 million acre-feet for IID and 309,367 acre-feet for CVWD, including losses.

Coachella Canal Lining Project

This project features the lining of 33.4 miles of the Coachella Canal east of the Salton Sea. Although this project is separate from lining the AAC, it also could result in reduced water diversions at Imperial Dam and permit more diversions to the southern California coastal area from Lake Havasu. This project is under investigation and includes preparation of a draft environmental impact statement/draft environmental impact report. Although this project may be constructed concurrently with the AAC Lining Project, no conflict will exist.

Colorado River Water Underground Storage and Recovery Study, Imperial County, California

This project would provide for storing surplus Colorado River water in the ground-water basin under the East Mesa of Imperial County for use during water short years. A study has been completed identifying quantity and availability of excess Colorado River flows; capacity of existing canals to convey excess flows for recharge; and ground-water basin capability for recharge, storage, and control of excess flows. A recharge test was run using the old unlined Coachella Canal for recharge. Further study to determine the quantity and quality of water that can be recovered has been proposed.

This project would not conflict with the AAC Lining Project.

Current IID-MWD Phase I Water Conservation Program

This program consists of an assortment of structural and nonstructural measures being undertaken within the IID irrigated area. Measures include lining existing canals, constructing regulating reservoirs and interceptor canals, installing nonleak gates, and distributing system automation equipment together with onfarm management measures. Together, these measures are expected to conserve 106,110 acre-feet per year.

Fifteen water conservation measures are being funded by MWD under a water conservation agreement dated December 22, 1988, and an Approval Agreement dated December 19, 1989. This project is not related to lining the AAC but, like canal lining, will result in conserved water that could possibly be used in the southern California coastal area.

Future IID-MWD Phase II Water Conservation Program

This program would consist of additional structural and nonstructural measures within the irrigated area of IID. Measures would be generally similar to those in the current IID-MWD water conservation program.

Together, these future measures could conserve an estimated 150,000 acre-feet per year. Like canal lining, the proposed phase II conservation program would conserve water that could be used in the southern California coastal area.

Lower Colorado Water Supply Project

This project, under development, consists of a well field along the south side of the AAC to produce water by exchange for the city of Needles and various other California parties along the Colorado River who use river water but have no rights or insufficient rights to use the water. The well field, located near the canal in the Sand Hills area between Pilot Knob and Drop 1, would recover a combination of regional ground water and water that has seeped from the canal. The wells would have the capacity of pumping 10,000 acre-feet annually into the AAC.

This project will benefit the parties along the river by means of an exchange agreement. The amount of water diverted from the river by the city of Needles and the other parties will be pumped from the well field into the AAC. This will allow IID to reduce its diversion from the river by a corresponding amount. The wells have been designed to accommodate the post-lining decline in ground-water elevation. Two pilot wells have been drilled.

Mexican Treaty Deliveries

The United States and Mexican Governments through the International Boundary and Water Commission (IBWC) jointly administer the terms of the 1944 Water Treaty relating to the Colorado River, which provides a guaranteed annual allotment of 1.5 million acre-feet and any other quantities arriving at the Mexican points of diversions. The operations of these terms are performed in collaboration with Reclamation and have been since 1950.

The procedure for ensuring that 1944 Water Treaty deliveries are made is for Mexico to present, through the IBWC, the annual schedule of requested deliveries prior to each calendar year. These schedule requests are within the treaty annual allotment and specified rates. Mexico's requests are transmitted by the IBWC to Reclamation, which makes necessary releases from upstream storage reservoirs on the Colorado River in fulfillment of the delivery schedule. The deliveries to Mexico are jointly monitored by the IBWC to ensure compliance with the 1944 Water Treaty allotment and schedules.

The IBWC constructs, operates, and maintains all necessary gauging stations and other measuring devices within the boundary section of the Colorado River through the respective IBWC sections of the United States and Mexico. These structures are for the purpose of keeping a complete record of the waters delivered to Mexico and of the riverflows downstream from Imperial Dam in the United States. A total of six gauging stations are jointly operated and maintained on the Colorado River, and five other gauging stations are operated and maintained by the IBWC for 1944 Water Treaty purposes. The AAC lining project would not conflict with the provisions of the 1944 Water Treaty with Mexico.

San Luis Rey Indian Water Right Settlement Act

Construction of the proposed All-American Canal Lining Project is authorized by Title II of P. L. 100-675. Title I of that public law directs the Secretary of the Interior to arrange for a supplemental water supply of 16,000 acre-feet per year

for the benefit of the La Jolla, Rincon, San Pasqual, Pauma, and Pala Bands of Mission Indians (Bands) and the city of Escondido, Escondido Mutual Company, and Vista Irrigation District (local entities) in the southern California coastal area, as part of a water rights settlement.

A number of potential sources of water are cited in the public law, including water conserved by the proposed All-American Canal Lining Project. Thus, there is a potential that 16,000 acre-feet per year or less of the water made available by the proposed project would be provided to the Bands and local entities through contracts with MWD and San Diego County Water Authority as part of the water rights settlement.

Sources of water for the Bands and local entities are being evaluated, and it is not known at this time which source of water would be used to meet the directive of Title I of the public law. If a decision is reached to utilize water conserved by the proposed All-American Canal Lining Project, and when the impacts of such use, if any, are known, appropriate National Environmental Policy Act (NEPA) compliance will be conducted. Such NEPA compliance, if required, would not affect the mitigation required or the record of decision issued by the Secretary of the Interior for the All-American Canal Lining Project.