

4.0 CUMULATIVE IMPACTS

Federal and State regulations require that an EIS/EIR analyze the cumulative impacts of a proposed project (40 C.F.R. §§ 1500-1508). NEPA defines cumulative impacts as an “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” (40 C.F.R. § 1508.7).

CEQA Guidelines require an assessment of “closely related past, present, and probable future projects,” in the immediate vicinity of the projects’ actions, combined with those of the proposed project for the evaluation of significant environmental impacts (CEQA Guidelines, § 15130 (b)(1)(A)). CEQA defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines, § 15355).

This chapter describes projects in the immediate vicinity of the unlined section of the Coachella Canal, as well as projects that could affect flows in the Colorado River between Parker and Imperial Dams. These include the related projects described in Section 1.7, as well as the additional projects discussed below.

4.1 PAST, PRESENT, AND REASONABLY FORESEEABLE PROJECTS

In general, the projects which are considered in this cumulative impacts analysis are limited to:

- Colorado River-related projects (described in Section 4.1.1). These consist of actions in the CVWD or along the Coachella Canal, All-American Canal, and Colorado River (from Parker Dam to Imperial Dam), and components of California’s Colorado River Water Use Plan. Many of these projects could affect flows in the Colorado River downstream from Parker Dam.
- Projects in the Coachella Valley east and north of the Salton Sea that would be constructed or implemented concurrent with the Coachella Canal Lining Project (described in Section 4.1.2).

4.1.1 Water-Related Projects

The following water-related projects are described in Section 1.8:

- Coachella Canal In-Place Lining Prototype Project
- Coachella Valley Groundwater Management Plan
- San Luis Rey Indian Water Rights Settlement
- All-American Canal (AAC) Lining Project
- Quantification Settlement Agreement and California's Colorado River Water Use Plan
- Lower Colorado River Water Supply Project
- IID-San Diego County Water Authority Water Conservation and Transfer Project

Because the discussions of these projects in Section 1.8 are adequate for the purposes of this cumulative impacts analysis, no additional description of these projects is included in this chapter. In addition to these projects, the Secretary of the U.S. Department of the Interior (Secretary) recently adopted specific guidelines under which surplus water conditions may be declared in the lower Colorado River Basin for an interim period that extends until 2016. The Final Colorado River Interim Surplus Criteria Environmental Impact Statement was released by Reclamation in December 2000, and a Record of Decision adopting the guidelines was signed on January 16, 2001.

Because there are a number of projects that could affect flows in the Colorado River between Parker Dam and Imperial Dam (see Section 1.7), the combined impacts of these projects (including cumulative impacts) are being addressed in separate NEPA and CEQA compliance documents. Specifically, Reclamation is preparing the NEPA analysis of proposed water transfers potentially affecting the Colorado River that are subject to Secretarial decisions. In order to provide a CEQA analysis of the water transfer impacts, MWD, IID, CVWD, and SDCWA are joint lead agencies in the preparation of a Program EIR for Implementation of the Colorado River Quantification Settlement Agreement.

In addition to its NEPA analysis of Colorado River-related water projects, Reclamation also conducted a formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to Section 7 of the Endangered Species Act. The Section 7 consultation included Reclamation's preparation and submittal of a "Biological Assessment for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary" (Reclamation 2000c). The Biological Assessment addressed the anticipated biological resource effects of several projects that

could, together, change the flow and surface water elevation of Colorado River water by up to 400,000 acre-feet per year between Lake Havasu and Imperial Dam. The Coachella Canal Lining Project was included in that assessment, based on a projected change in flow of 26,000 acre-feet per year. On January 12, 2001, FWS concluded the Section 7 consultation with the issuance of the “Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California and Nevada” (FWS 2001).

The following projects are also addressed in this cumulative impacts analysis because they relate to water resources and wildlife and habitat protection along the lower Colorado River.

- **Colorado River Basin Regional Water Quality Control Board Watershed Management Initiative.** The Watershed Management Initiative (WMI) is an internal planning document prepared by the Regional Water Quality Control Board (RWQCB), Colorado River Basin Region (Region 7). The State Water Resources Control Board (SWRCB) requires each RWQCB to prepare a long-range plan identifying areas of concern, areas of staff priorities, areas where funds are spent, and areas where additional funds are needed. The planning document includes the RWQCB’s ongoing water quality efforts, such as preparing and implementing Total Maximum Daily Loads (TMDLs). The Priority Watershed in this Region is the Salton Sea Transboundary Watershed. Within the watershed are five (out of a total of six) of the Region’s impaired surface water bodies. The Watershed Management Initiative is considered to be a 5-year horizon planning document to guide the RWQCB’s efforts, to permit the RWQCB Executive Director to communicate water quality issues to the Board, and to provide interested parties with information regarding its activities.
- **Colorado River Salinity Control Program.** The Colorado River Basin Salinity Control Forum determined that 1,477,700 tons of salt must be removed or prevented from entering the Colorado River system annually to maintain the numeric criteria for salinity below Hoover Dam (723 mg/l), below Parker Dam (747 mg/l), and at Imperial Dam (879 mg/l) through 2015. This action, pursuant to Title II of the 1974 Colorado River Basin Salinity Control Act, P.L. 93-320, as amended, provides for the construction, operation, and maintenance of projects upstream of Imperial Dam in the Colorado River Basin to control the salinity of water delivered to users in the United States and Mexico. A wide range of salinity control actions have been undertaken in the Colorado River basin as part of this program. These actions currently include a salinity control program on BLM land; a voluntary on-farm salinity control program by U.S. Department of Agriculture; and a Reclamation program for funding basin-wide salinity control projects through competitive bid. This action is implemented by a variety of stakeholders and actions are

coordinated by an interstate group, the Colorado River Basin Salinity Control Forum. In order to meet the goal of 1.48 million tons of salinity control through 2015, it will be necessary to fund and implement potential new measures, which ensure the removal of an additional 756,000 tons annually.

In addition to these actions, Title I of P.L. 93-320 provides for additional programs downstream from Imperial Dam for the purpose of controlling the salinity of Colorado River water delivered to Mexico and to implement provisions of Minute 242 of the International Boundary and Water Commission. These programs include the construction, operation, and maintenance of a desalting plant at Yuma, Arizona; development of a protective well field along the U.S./Mexico border; construction of a bypass drainage canal to the Santa Clara Slough in Mexico; and a replacement flow study.

- **Senator Wash Dam and Reservoir.** Senator Wash Dam and Reservoir consists of an off-stream pump generation facility and lake which serves to re-regulate Colorado River flows. Water is pumped from the River to a 470-acre regulating reservoir when River flows exceed water use requirements, and water is released to meet unanticipated increases in demands. Concerns over seepage through the earthfill dam have caused Reclamation to limit the maximum operating level of the regulating reservoir to 335 feet, 16 feet lower than the initial design. Project components include the installation of pressure sensitive equipment below Senator Wash Dam and Squaw Lake Dike and the incremental raising and lowering of water elevation between 251 and 235 feet.
- **Actions Related to the Biological Conference Opinion on Lower Colorado River Operations and Maintenance.** Reclamation prepared a Biological Assessment for effects of ongoing and projected routine operations and maintenance on the lower Colorado River (Reclamation 1996). Upon consultation with the FWS, a Biological and Conference Opinion was issued regarding the operations and maintenance activities (FWS 1997). Pursuant to the reasonable and prudent alternative and the 17 specific provisions provided in the Biological Conference Opinion, Reclamation is undertaking various conservation actions to benefit the riparian region of the lower Colorado River and associated species.
- **Lower Colorado River Multi-Species Conservation Program (LCRMSCP).** The LCRMSCP is a partnership of state, federal, tribal, and other public and private stakeholders interested in managing the water, biological resources, and other related resources of the lower Colorado River Basin. In 1995, agreements were formalized between the U.S. Department of the Interior and the states of Arizona, California, and Nevada to develop the LCRMSCP. The purpose of the LCRMSCP is to:

- Conserve habitat and work toward the recovery of threatened and endangered species and to reduce the likelihood of additional species listings under the federal Endangered Species Act (FESA).
- Accommodate current water diversions and power production and optimize opportunities for future water and power development.
- Provide the basis for long-term (50-year) FESA and California Endangered Species Act (CESA) compliance via incidental take authorizations resulting from the implementation of the first two purposes.

The LCRMSCP is currently (April 2001) under preparation. Concurrently, Reclamation acquired interim (5-year) FESA compliance for its ongoing and projected routine water and power operations and maintenance activities via a 1996 Biological Assessment (Reclamation 1996) and a 1997 Biological Conference Opinion (FWS 1997).

4.1.2 Other Related Projects

The Coachella Canal Lining Project would result in short-term construction impacts and would eliminate most seepage along the currently unlined 33.2-mile-long (total) segments of the canal. The resulting effects on biological resources, groundwater recharge, and other environmental conditions need to be considered in combination with other projects and planning efforts that could occur in the same geographic area and affect similar resources.

- **Hayfield/Chuckwalla Storage and Conjunctive Use Program.** The Hayfield/Chuckwalla Groundwater Storage Program was considered by MWD's Board in April 1999. Under this project, MWD plans to store Colorado River water in the Hayfield Valley groundwater basin. Land in the valley is proposed to be acquired for project implementation and the acquisition should be completed by 2002. Environmental documentation for the land acquisition, preliminary design and permitting would be complete by May 2002. Final design and construction of project facilities would be completed by May 2005. The Hayfield Groundwater Storage Program would be fully operational with up to approximately 500,000 acre-feet of water in storage in 2006.
- **Cadiz Groundwater Storage and Dry-Year Supply Program.** The Cadiz Groundwater Storage and Dry-Year Supply Program is a cooperative effort between MWD and Cadiz Inc. to meet part of the need for dry-year water supply within MWD's six-county service area. The project would involve: (1) the storage of a minimum of 1 million acre-feet, depending upon the availability of Colorado River water; (2) storage or extraction at a rate of approximately 150,000

acre-feet per year; and (3) a transfer of up to 2 million acre-feet of local groundwater, depending upon the natural recharge of the groundwater basin over the 50-year term of the project. The project would result in the construction and operation of the following facilities: a 35-mile water conveyance pipeline between Iron Mountain Pumping Plant on the Colorado River Aqueduct and the Cadiz/Fenner area, a Cadiz Pumping plant at MWD's existing Iron Mountain Pumping Plant facility, 390 acres of spreading basins for percolation of Colorado River water into the groundwater basin in the Cadiz/Fenner area, a wellfield for extracting stored and indigenous groundwater, and associated power poles and lines along the conveyance pipeline and wellfield. Pending completion of the environmental documentation, construction of storage and conveyance facilities would begin in 2001 and be complete by summer 2002.

- **West Mojave Coordinated Management Plan.** In 1992, a partnership including five military installations, three federal land management agencies, four State agencies, four counties, a water district, and 11 cities and towns was established to formulate the West Mojave Coordinated Management Plan. The goal of the plan is to develop a cost-effective and efficient strategy for the planning area to recover listed species, to minimize the need to list species in the future, and to provide for community growth and resource utilization. This plan is a comprehensive, inter-agency planning effort for conserving biological resources in the West Mojave region. The plan will provide a streamlined permit process, by defining consistent mitigation and compensation obligations, and by reducing the need for biological surveys in certain areas, project-specific incidental take permits, and the uncertainty related to requirements for long-term species and habitat conservation (Reclamation/Salton Sea Authority 2000).
- **Coachella Valley Multiple Species Habitat Conservation Plan.** This project involves the development of a multiple species habitat conservation plan (MSHCP) that would enable incidental take permits to be issued for numerous listed and unlisted species that occur in the plan area. The goal of the plan is to protect species of concern while improving the regulatory processes guiding species management. The planning area covers approximately 1,950 square miles in the Coachella Valley and the surrounding mountains of Riverside County including the unlined portion of the Coachella Canal. The Coachella Valley Mountains Conservancy is preparing the plan in conjunction with the following cooperating agencies: National Park Service (NPS), Natural Resources Conservation Service (NRCS), FWS, U.S. Forest Service (USFS), BLM, DFG, California Department of Parks and Recreation (CDPR), and Riverside County, as well as private land owners and organizations.
- **Northern and Eastern Colorado Desert Coordinated Ecosystem Management Plan.** This plan provides for the management of a wide range of habitat and species of concern. The planning area is approximately 5.5 million acres northeast of the Salton Sea which encompasses

the Coachella Canal project area. The first goal of the project is to review the current land use plan, given the 1990 listing of the desert tortoise. The second goal is to expand the planning effort to include approximately 30 wildlife species and 50 plant species of concern. BLM is the lead agency for plan development, with cooperation from NPS, the U.S. Marine Corps (USMC), USGS, FWS, DFG, Imperial County, and Riverside County. The management plan will become a binding plan for BLM, NPS, and the USMC (Reclamation/Salton Sea Authority 2000).

- **Coachella Valley/Salton Sea Nonpoint Original Source Project.** This project is an integrated program to address the environmental problems of nonpoint source pollution in the Salton Sea and Coachella Valley Stormwater Channel. The lead agency for this action is the Morongo Consortium of Coachella Valley Tribal Bands. Objectives of the project are as follows:
 - Promote the restoration of impaired beneficial uses of water resources;
 - Develop and implement ground water protection measures;
 - Develop partnerships with stakeholders in the watershed in a cooperative water quality monitoring effort;
 - Construct wetlands test cells for treating agricultural drainage water with aquatic vegetation before it discharges to the Salton Sea;
 - Make data generated under this project accessible to the general public;
 - Implement Best Management Practices (BMPs) for controlling nonpoint source pollution; and
 - Increase public awareness and participation in pollution prevention.
- **Coachella Valley National Wildlife Refuge—Salt Cedar Removal.** The Coachella Valley National Wildlife Refuge (CVNWR) provides habitat for the federally listed threatened Coachella Valley fringe-toed lizard. In an effort to restore approximately 3,000 acres of additional habitat for the species, the CVNWR and Coachella Valley Mountains Conservancy are actively eradicating the non-native, invasive salt cedar (predominantly *Tamarix aphylla*) from the CVNWR's lands. It is estimated that the remaining salt cedar on site will be removed this year.
- **Whitewater River Flood Control Project.** The Whitewater River Flood Control Project is a cooperative effort between the USACOE and CVWD, evaluating flood protection measures within the Thousand Palms area of the Whitewater River Basin. The 2,800-acre project area is located in Riverside County and includes unincorporated territory as well as portions of the cities of Cathedral City and Indio. The project consists of flood protection and environmental preservation measures (specifically protection of Coachella Valley fringe-toed lizard habitat within the Coachella Valley Preserve).

- **Total Maximum Daily Load (TMDL) Program.** Section 303(d)(A)(1) of the Clean Water Act (CWA) requires the Colorado River Basin RWQCB to:
 - Identify the Region's waters which do not comply with water quality standards applicable to such waters,
 - Rank the impaired waterbodies taking into account, among other criteria, the severity of the pollution and the uses made of such waters, and
 - Establish TMDLs for those pollutants causing the impairments to ensure that impaired waters attain their beneficial uses.

A TMDL can be defined as the sum of the individual waste load allocations for point sources of pollution, plus the load allocations for nonpoint sources of pollution, plus the contribution from background sources of pollution. It can be expressed in terms of either mass per time, toxicity, concentration, a specific chemical, or other appropriate measure. Clean Water Act Section 303(d) and 40 CFR Section 130.2 et seq., specify the components and requirements of a TMDL. Essentially, the TMDL is a numeric target developed to achieve water quality standards and must:

- Show how the TMDL will result in attainment of standards of concern in the specific waterbody,
- Identify and explain the basis for the total allowable load(s) such that the water body assimilation capacity is not exceeded,
- Identify and explain the basis for individual waste load allocations for point sources and load allocations for nonpoint sources of pollution,
- Explain how an adequate margin of safety is provided to account for uncertainty in the analysis; and
- Account for seasonal variations and critical conditions concerning the flow, loading, and other water quality parameters.

If the State fails to develop a TMDL, or if EPA rejects the State's TMDL, EPA must develop one (CWA 303(d)(D)(2), 40 CFR 130.6(c)). Upon approval of the TMDL by EPA, the State is required to incorporate the TMDL, along with appropriate implementation measures, into the State Water Quality Management Plan (40 CFR 130.6(c)(1), 130.7). The RWQCB for the Colorado River Basin is currently developing TMDLs for Sedimentation/Siltation for the Alamo River and bacteria for the New River at the International Boundary (California Environmental Protection Agency 2000).

- **Brawley Constructed Wetlands Demonstration Project (Brawley Wetlands Project).** The Brawley Wetlands Project involves the construction of two pilot treatment wetlands to

demonstrate water quality improvements in agricultural drainage discharged to the New River. A five-acre wetland is being constructed on a seven-acre site near the City of Brawley, which is designed to divert and improve the quality of approximately 2.4 million gallons of New River water per year. A second, larger wetland (40 acres) is being constructed on a 68-acre site near the City of Imperial. This 40-acre wetland would receive 6.9 million gallons of agricultural water per year from IID's Agricultural Rice 3 Drain before it is discharged to the New River. Both wetlands are designed to remove silt from inflows as they flow through the first sedimentation basin and reduce nutrient loads, pesticide/herbicide toxicity, and selenium concentrations as water flows through a series of shallow ponds. A monitoring program will be conducted during the 3-year project to determine relative water quality improvement and the effects on wildlife.

- **Dos Palmas Area of Critical Environmental Concern Management Plan and Decision Record.** This project involves the management of the 14,880-acre Dos Palmas Area of Critical Environmental Concern (ACEC) located just west of the canal near the town of North Shore (see Figure 3-4). The ACEC was established for the protection of washes, seeps, and springs, which provide habitat for the federally listed desert pupfish, Yuma clapper-rail and other sensitive species (BLM 1998). The Dos Palmas ACEC incorporates BLM land that was formerly designated as the Salt Creek ACEC. Management actions involve habitat protection (e.g., fire management, signing and fencing), habitat restoration and maintenance (e.g., fish pond reconfiguration, control of noxious exotic plants), public outreach and visitor services (e.g., roads and trails, docent programs), and ecosystem studies and monitoring. The management plan was prepared through a collaborative effort between the BLM, TNC, FWS, USGS, DFG, and CDPR.

4.2 CUMULATIVE IMPACTS BY ISSUE AREA

The incremental contribution of the proposed Coachella Canal Lining Project to cumulative impacts is addressed below. Because of similarities in the types of impacts that would result from the three project alternatives (i.e., Conventional Lining, Underwater Lining, and Parallel Canal), this cumulative impact analysis applies to all three alternatives unless otherwise specified.

The cumulative impacts analysis in this Final EIS/EIR reflects specific assessments of the Coachella Canal Lining Project's incremental contribution to cumulative effects along the Colorado River. Mitigation for cumulative effects along the Colorado River would be based on the canal lining project's incremental contribution to those effects. This Final EIS/EIR provides specific descriptions of the proposed project's incremental contribution to cumulative effects along the river and the corresponding mitigation which would offset that incremental contribution.

4.2.1 Surface Water

The Coachella Canal Lining Project would, as mitigated, maintain mean annual flow levels in Salt Creek, thus avoiding incrementally contributing to cumulative surface water impacts to the creek. Additionally, this would maintain the mean annual level of canal-seepage flows entering the Salton Sea, as measured at USGS gauging station number 10254050, and the canal lining project would, therefore, not contribute to a cumulative surface water impact to the Salton Sea.

The Coachella Canal Lining Project would conserve approximately 30,850 acre-feet of water annually. It is projected that 26,000 acre-feet per year of conserved water would be available for the purpose of assisting California in meeting its need to reduce Colorado River water consumption, and it would also help facilitate implementation of the San Luis Rey Indian Water Rights Settlement Act. As a result of changing the point of diversion for this 26,000 acre-feet, there would be a corresponding reduction in flows at certain times downstream of Parker Dam to Imperial Dam. This change, which would reduce the surface water elevation of the Colorado River by a maximum of approximately 0.19 inch, would have a negligible effect on the hydraulic characteristics of the lower Colorado River.

The cumulative effect of other water conservation and transfer projects, in combination with the Coachella Canal Lining Project, may result in a total reduction of flows between Parker Dam and Imperial Dam of as much as 400,000 acre-feet per year (Reclamation 2000c). The cumulative effect of 400,000-acre-foot reduction in flows downstream of Parker Dam is projected to result in up to a 4-inch drop in the Colorado River's mean annual surface elevation, and up to a 12-inch drop in mean hourly surface elevations under maximum flow conditions (Reclamation 2000c). This change in surface water elevation would not in and of itself constitute a cumulatively considerable impact. The effects of this change on backwaters are described below, and its effects on biological resources are addressed in Section 4.2.5 and 4.2.7.

The Coachella Canal Lining Project represents approximately 6.5 percent of the up to 400,000-acre-foot annual change. As indicated in the "Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California and Nevada" (FWS 2001), the 400,000-acre-foot annual change may result in the loss of 35 acres in the main channel, 17 acres of open water in backwaters, and 28 acres of emergent vegetation in backwaters. (Due to rounding, the total of the open water and emergent vegetation in backwaters is 44 acres, not 45.)

In the context of the lower Colorado River, the loss of 35 acres of open water in the main channel is not a significant cumulative water resource impact. The potential reduction in the backwaters, however, would require mitigation. The mitigation requirements contained in this EIS/EIR are consistent with the Biological Opinion. To mitigate the Coachella Canal Lining Project's incremental contribution to this 44 acre impact, Reclamation and CVWD would create or restore 2.9 acres of backwaters along the lower Colorado River. (The 2.9 acres equal 6.5 percent of the 44 acre cumulative impact.) This would mitigate the incremental contribution of the Coachella Canal Lining Project on surface waters to less than significant levels.

4.2.2 Groundwater

The Coachella Canal Lining Project would result in a reduction in groundwater infiltration associated with canal seepage, with a corresponding decrease in shallow (perched) groundwater levels southwest of the unlined canal section. With the exception of the Prototype In-Place Lining Project, none of the other projects identified in this cumulative impacts analysis would contribute to a reduction in perched groundwater in this area. The AAC Lining Project and the Coachella Valley Groundwater Management Plan would affect groundwater levels to the southeast and north of the project area, respectively, but they would not have any measurable effect on the perched groundwater between the unlined portion of the Coachella Canal and the Salton Sea. Because of (1) the minimal impact associated with the Prototype In-Place Lining Project and (2) the geographic separation between the Coachella Canal Lining Project and other projects that may affect groundwater, there would not be a cumulatively significant groundwater impact associated with this project.

4.2.3 Water Quality

Short-Term

Temporary, less than significant water quality impacts in canal waters would occur as a result of the canal lining construction activities. None of the related projects identified in this cumulative impacts analysis would contribute incrementally to the short-term water quality impacts of the Coachella Canal Lining Project.

Long-Term

Lining the Coachella Canal would not affect the temperature, pH, dissolved oxygen, or turbidity levels in the Colorado River. The proposed project would tend to slightly increase the salinity of the

Colorado River downstream from Parker Dam because the reduction in flow would tend to provide less dilution for drainage inflow to the river from irrigated areas between Parker Dam and Imperial Dam. The incremental effect of the Coachella Canal Lining Project on the increased salinity would be less than significant, at approximately one-tenth of a milligram per liter. The International Boundary and Water Commission, in its comment letter on the Revised and Updated Draft EIS/EIR for this project, concurred that lining the Coachella Canal would have an insignificant impact on the Colorado River flows entering Mexico (see Comment Letter A in Volume I of the Final EIS/EIR).

Of the projects evaluated in this cumulative impacts analysis, many would have no effect on the salinity of the Colorado River (for example, those that would not result in discharges to the river or change flow levels in the river). Additionally, some projects would have beneficial effects, such as the Colorado River Salinity Control Program. Reclamation's recently adopted Interim Surplus Criteria are projected to result in a reduction of total dissolved solids of approximately five milligrams per liter below Parker Dam and an increase of approximately one milligram per liter above Imperial Dam (Reclamation 2000b). The greatest potential for adverse cumulative effects to the salinity of the Colorado River is related to the water conservation and transfer projects that may change the point of diversion for up to 400,000 acre-feet of water annually. These water transfers would not add discharges of salts or other dissolved solids to the Colorado River; rather, they would simply provide less dilution of dissolved solids within the river between Parker Dam and Imperial Dam. Extrapolating the effect of the Coachella Canal Lining Project's proposed annual 26,000-acre-foot diversion to 400,000 acre-feet suggests that the change in salinity associated with these projects would be less than two milligrams per liter, or less than a 0.5 percent increase in salinity. This would not constitute a significant water quality impact; accordingly, no mitigation for the Coachella Canal Lining Project's contribution to this impact is required.

4.2.4 Marsh/Aquatic and Desert Riparian Habitat Along the Coachella Canal

Without mitigation, lining the Coachella Canal would cause significant project-specific (as opposed to cumulative) impacts to marsh/aquatic and desert riparian habitat along the Coachella Canal. These impacts would result from the reduction in seepage that currently flows from the unlined channel and supports marsh/aquatic and desert riparian vegetation. Because the loss and degradation of this habitat would be mitigated on an acre-for-acre basis based on ecological equivalency, it would not cause an incremental contribution to a cumulative marsh/aquatic and desert riparian habitat impact.

4.2.5 Marsh/Aquatic and Desert Riparian Habitat Along the Colorado River

As described in Section 4.1.1., there are a number of projects that may affect points of water diversion and delivery along the Lower Colorado River. The cumulative effects of these projects on marsh/aquatic and desert riparian habitat along the Colorado River were addressed in the “Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California and Nevada” (FWS 2001). This cumulative impact assessment of marsh/aquatic and desert riparian vegetation impacts is consistent with the findings of the Biological Opinion. As indicated in the Biological Opinion, water conservation and transfer projects that may affect the lower Colorado River Project could cause the following effects to marsh/aquatic and desert riparian habitat along the Colorado River:

- loss of 44 acres of backwaters
- loss of 372 acres of vegetation in saturated soils that supports the southwestern willow flycatcher.

Pursuant to the Biological Opinion, these impacts will be mitigated through the restoration or creation of 44 acres of backwaters and the creation and monitoring of willow flycatcher habitat. Depending on the results of the monitoring effort, the status of willow flycatcher populations, and the Endangered Species Act status of the flycatcher (i.e. “threatened” or “endangered”), the total amount of willow flycatcher habitat that will be created may range from 372 acres to 1,116 acres.

The incremental contribution of the Coachella Canal Lining Project to marsh aquatic and desert riparian vegetation impacts along the Colorado River would be mitigated at a ratio comparable to the project’s incremental contribution to those effects. In other words, the mitigation for the Coachella Canal Lining Project will constitute 6.5 percent of the mitigation for cumulative impacts resulting from the 400,000-acre-foot change in diversion. Based on this factor, the mitigation for the Coachella Canal Lining Project would be:

- creation or restoration of 2.9 acres of backwaters along the lower Colorado River
- creation of 24 to 73 acres of willow flycatcher habitat along the lower Colorado River (with the specific amount of creation to be determined based on the monitoring results and the guidance provided in the Biological Opinion).

In addition, mitigation for the Coachella Canal Lining Project includes providing an incremental contribution (6.5 percent) of the funds necessary to monitor the 372 acres of saturated willow flycatcher habitat that may be cumulatively affected by the water conservation and transfer projects. This mitigation is consistent with the conservation measures identified in the Biological Opinion, and it would offset the Coachella Canal Lining Project's incremental contribution to cumulative marsh/aquatic and desert riparian habitat along the Colorado River.

4.2.6 Terrestrial Habitat

The proposed project would have relatively minor impacts to terrestrial habitat, and it includes mitigation for impacts to terrestrial habitat that are considered sensitive (e.g., habitat that is valuable to wildlife). As a result of this mitigation, the proposed project would not incrementally contribute to a cumulative terrestrial habitat impact.

4.2.7 Special Status Species

Impacts to special status species (i.e., federal- or State-listed threatened or endangered species) would be mitigated as described in Sections 3.8 and 3.9. Implementation of the mitigation measures described in Chapter 3.0 and being developed in the ongoing informal consultation with FWS and DFG would ensure that the proposed project does not incrementally contribute to a cumulative special status species impact along the Coachella Canal.

The Coachella Canal Lining Project would also contribute to cumulative effects on the Colorado River from Parker Dam downstream to Imperial Dam. As identified in the "Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California and Nevada" (FWS 2001), changes in Colorado River flows and surface elevations could affect the bonytail chub, razorback sucker, Yuma clapper rail, and southwestern willow flycatcher. The Coachella Canal Lining Project's incremental contribution to these impacts would be mitigated through the measures described below. These mitigation measures are consistent with, and would help implement, the conservation measures identified in the Biological Opinion.

The potential contribution to effects on the southwestern willow flycatcher would be mitigated through the monitoring of and creation of willow flycatcher habitat, as described in Section 4.2.5. Incremental impacts to razorback suckers would be mitigated by stocking 1,300 razorback suckers

at least 25 centimeters (approximately 10 inches) or greater in length in the Colorado River between Parker Dam and Imperial Dam. Mitigation for impacts to bonytail chubs would be to provide \$3,250 (of a \$50,000 total) to the bonytail hatchery program described in the Biological Opinion. These measures would offset the Coachella Canal Lining Project's incremental impact to special status species.

4.2.8 Large Mammal Escape

The installation of escape ridges and, at areas of high wildlife visitation, escape ramps as a part of project construction (see Section 3.10) would avoid incrementally contributing to a cumulative impact to large mammals that may become trapped in other canals, or other sections of the Coachella Canal, that are not similarly equipped. The cumulative effect of the canal lining project would be beneficial in regard to large mammal escape.

4.2.9 Canal Fishery

None of the other projects identified in this cumulative impacts analysis would affect fish levels in the currently unlined portion of the Coachella Canal. Accordingly, there would be no cumulative impacts to this resource.

4.2.10 Cultural Resources

The canal lining alternatives would potentially disturb archaeological resources during construction. As described in Section 3.12, project-specific impacts to cultural resources would be mitigated to less than significant levels for the Conventional Lining Alternative and the Underwater Lining Alternative. The impact of the Parallel Canal Alternative to archaeological resources along the canal would similarly be mitigated to less than significant levels, although the impacts of this alternative on the historical resource value of the canal may be considered unmitigable pending consultation with the State Historic Preservation Officer. None of the other projects identified would impact cultural resources in the vicinity of the Coachella Canal. Although the Parallel Canal Alternative may have significant project-specific impact, incremental contributions to other cumulatively considerable cultural resource impacts would be mitigated through compliance with Section 106 of the National Historic Preservation Act. This act includes regulatory requirements applicable to federal actions or federally funded actions, and it addresses the protection of, and mitigation of impacts to, historic properties. Also, Phase III archaeological surveys would be required for construction activities that could potentially affect sensitive archaeological resources. As a result

of these factors, none of the alternatives would incrementally contribute to a cumulatively considerable cultural resource impact.

4.2.11 Indian Trust Assets

As discussed under Section 3.13.3, the proposed project would have no impact on Indian Trust Assets. In fact, the canal lining alternatives would have a beneficial effect by facilitating implementation of the San Luis Rey Indian Water Rights Settlement Act. Accordingly, the Coachella Canal Lining Project would not incrementally contribute to a cumulative impact on these assets.

4.2.12 Recreation

The project would result in short-term recreation impacts from inconveniences caused by construction traffic and a temporary loss of fish in the canal. None of the projects identified in this cumulative impacts analysis would exacerbate or be significantly affected by these temporary conditions. In accordance with project mitigation measures, long-term fish populations would be re-established at near their current levels; therefore, long-term cumulative recreation impacts would not result. Fishing, currently illegal, may be permitted between siphons 7 and 14 and between siphons 15 and 32 following completion of the project if liability issues can be resolved.

The project would not contribute to significant cumulative recreation effects along the Colorado River because the maximum drop in surface water elevation along the river would be 12 inches (under maximum hourly flow conditions), and the maximum mean annual change in surface elevation would be approximately 4 inches (Reclamation 2000c). This change would not have a cumulatively considerable effect on recreational activities along the lower Colorado River, including recreational activities at California's Picacho State Recreation Area. The proposed project would not have any measurable effect on the Salton Sea and would not contribute to any cumulatively considerable recreation impacts at the Sea.

4.2.13 Land Ownership and Use

None of the projects identified in this cumulative impacts analysis would result in development adjacent to the canal or in areas that would be affected by the proposed project's reduction in canal seepage. As discussed in Section 3.15, approximately 97 percent of the land adjacent to the canal is undeveloped, consisting of open desert. Accordingly, the development of the proposed action in

conjunction with past, present, and foreseeable future projects would not result in cumulative land use impacts adjacent to the canal. Project-specific impacts regarding the loss of canal seepage water and the corresponding effect on adjacent land uses are discussed in Sections 3.2.2 and 3.15.2 of this EIS/EIR.

4.2.14 Sand and Gravel Supplies

Of the projects identified in this cumulative impacts analysis, only the AAC Lining Project is expected to require sand and gravel in an amount that could contribute to a cumulative impact in association with the Coachella Canal Lining Project. The AAC Lining Project may require 185,000 cubic yards of sand and gravel, of which roughly 157,000 cubic yards will need to meet certification for concrete (Reclamation/IID 1994). As described in Section 3.16 of this EIS/EIR, the Coachella Canal Lining Project would require:

- 105,000 cubic yards of sand and gravel for the Conventional Lining Alternative, of which 70,000 would need to be certified for concrete;
- 520,000 cubic yards for the Underwater Lining Alternative, of which 130,000 cubic yards would need to be certified for concrete; or
- 120,000 cubic yards for the Parallel Canal Alternative, of which 90,000 cubic yards would need to be certified for concrete.

The sand and gravel supplies to be utilized by the canal lining project would be obtained from local sources that possess adequate supplies to meet the projected demands of the project. The development of new sand and gravel sources, as necessary, would occur as described in Section 3.16 of this Final EIS/EIR. While it would be speculative to identify all potential sources of sand and gravel for the future construction of these two projects, the procedures described in Section 3.16 would be adequate to ensure that sand and gravel use for the canal lining projects does not cause a significant cumulative impact to regional sand and gravel supplies. None of the other projects addressed in this analysis would incrementally contribute to a cumulative sand and gravel impact.

4.2.15 Transportation

The proposed project would generate construction-related traffic in the vicinity of the unlined canal section. None of the other projects identified in this cumulative impacts analysis would generate

measurable traffic in this area during construction of the canal lining project; accordingly, they would not contribute to a cumulatively significant transportation impact.

4.2.16 Air Quality

Construction of the canal lining alternatives would result in PM₁₀ and NO_x emissions that would exceed SCAQMD's CEQA significance thresholds. With the exception of NO_x emissions for the Parallel Canal Alternative, none of the alternatives would exceed *de minimis* levels as established pursuant to the federal Clean Air Act. Although emissions would exceed SCAQMD thresholds, the actual physical impacts would be minimal because prevailing westerly winds would dilute and move emissions into the unpopulated Chocolate Mountains Aerial Gunnery Range and adjacent unpopulated areas east of the canal. None of the other projects identified in this analysis would be expected to produce emissions that would occur at the same time as the Coachella Canal Lining Project and that would also be of a large enough magnitude to cause cumulatively significant air quality impacts.

4.2.17 Hydroelectric Power

Hydroelectric powerplants at Parker Dam and Headgate Rock Dam currently generate electric power with water released to meet downstream delivery requirements. The Coachella Canal Lining Project would affect hydroelectric power generation along the lower Colorado River by reducing releases at Parker and Headgate Rock Dams by approximately 26,000 acre-feet per year. The proposed project would reduce power generation at Parker Dam by up to approximately 0.36 percent, and it would reduce power generation of Headgate Rock Dam by up to approximately 0.10 percent. These incremental reductions in hydroelectric power generation would not contribute to a cumulatively significant impact.

4.2.18 Public Safety

Short-term safety issues during construction of the canal lining project would be mitigated to less than significant levels through implementation of standard construction safety practices and other project design features such as the traffic control plan. In addition, the design of the canal would benefit public safety through the addition of escape ridges along the channel side slopes and safety ladders along each side of the canal. These escape mechanisms could be used by persons who accidentally fall into the canal. None of the reasonably foreseeable projects would be anticipated to

cause or exacerbate safety impacts; accordingly, none of these projects would contribute to a cumulative safety impact.

4.2.19 Socioeconomics

No residences or buildings would be displaced as a result of the canal lining project. The short-term generation of construction-related jobs would be beneficial to the local economy and would not be expected to substantially alter the area's population/housing balance. In addition, the project would comply with Executive Order 12898 regarding Environmental Justice. Accordingly, significant cumulative socioeconomic impacts are not anticipated.

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**5.0 THE RELATIONSHIP BETWEEN SHORT-TERM USES
OF THE ENVIRONMENT AND THE MAINTENANCE AND
ENHANCEMENT OF LONG-TERM PRODUCTIVITY
AND
SHORT-TERM USES OF MAN'S ENVIRONMENT VERSUS
MAINTENANCE OF LONG-TERM PRODUCTIVITY**

This chapter summarizes the short-term effects that project construction would have on various resources in relation to the long-term condition of the affected resources. As described in Section 1.5, "Water Need," conserved water is needed to meet existing demand in southern California, help California reduce its use of Colorado River water to within its basic (non-surplus year) apportionment of 4.4 million acre-feet while at the same time maintaining the existing rate of diversions from the Colorado River to the southern California coastal plain, and facilitate implementation of the San Luis Rey Indian Water Rights Settlement Act. In years of less than average water supply, such as occurred during the 1987-1992 drought, water supply falls short of demand in the southern California coastal plain. Thus, there is an immediate need to maximize efficient use of current supply. Lining the Coachella Canal would increase the beneficial use of current supply. With the implementation of environmental mitigation measures outlined in Chapters 3.0 and 7.0 to avoid impacts or to maintain existing resource values, the long-term productivity of the existing environment would not change significantly.

5.1 GROUNDWATER

In general, the shallow groundwater which is contributed by the canal in the area of its unlined portion would, over a period of years, diminish after lining. This, in turn, would reduce the amount of water available to the seepage-induced vegetation. Essentially, it is projected that, pending approval, 4,850 acre-feet of the conserved water would be managed annually by CVWD for marsh/aquatic and desert riparian habitat maintenance along the canal, 21,500 acre-feet would be conveyed annually for municipal and industrial uses on the southern California coastal plain, and 4,500 acre-feet per year would be used to facilitate implementation of the San Luis Rey Indian Water Rights Settlement Act. The reduction of the groundwater quantity in the project area is a long-term effect. The productivity of the resources supported by the current seepage-enhanced groundwater levels will be maintained as discussed in this chapter under "Marsh/Aquatic and Desert Riparian Habitat Along the Coachella Canal."

5.2 MARSH/AQUATIC AND DESERT RIPARIAN HABITAT ALONG THE COACHELLA CANAL

The short-term effects of the project on marsh/aquatic and desert riparian habitat along the canal would consist of a period of disturbance and adjustment as existing marsh/aquatic habitat in the Dos Palmas area is maintained, new marsh/aquatic and desert riparian vegetation is established, the habitat functions and values (i.e., “ecological equivalency”) of existing habitat areas impacted along the entire canal are consolidated in the Dos Palmas area, and existing vegetation elsewhere along the canal declines in value. The development of replacement habitat and acquisition of additional land for conservation purposes is calculated to provide a long-term resource equivalent in value to the existing habitat. The mitigation plan specifically calls for use of up to 4,850 acre-feet per year of the conserved water for marsh/aquatic and desert riparian habitat maintenance, if necessary. Additionally, by providing resources for habitat development and preservation in the Dos Palmas Preserve area, the project would assist the BLM with the implementation of the *Dos Palmas Area of Critical Environmental Concern Management Plan* for consolidation of natural resource values in the ACEC. Such relocation and consolidation of environmental values within the ACEC would promote improved long-term maintenance of these values. These short-term impacts and their relationship to long-term productivity would be essentially the same for each alternative.

5.3 TERRESTRIAL HABITAT

5.3.1 Conventional Lining Alternative

Some previously undisturbed areas are expected to be used for construction access and staging. Upon completion of construction, the disturbance to these areas would be noticeable for several years before natural revegetation or weathering processes render impacts unnoticeable. In the long term, these areas are expected to fully recover to their current levels of productivity. However, in the short-term, habitat impacts will be mitigated at equivalent values, including two-for-one replacement of affected trees.

5.3.2 Underwater Lining Alternative

In addition to temporary access road and staging disturbance described above, excavated fine earth material from the canal bottom is expected to be deposited on the west side of the canal bank road. Some of this area is undisturbed. If the material is deposited in this area, the impact would be noticeable until natural weathering and revegetation processes render the deposited material

unnoticeable. In one to two years, these areas are expected to fully recover to their current levels of productivity.

5.3.3 Parallel Canal Alternative

In addition to the disturbance on access roads and staging areas described above for the Conventional Lining Alternative, additional undisturbed lands would be permanently affected due to excavation and temporarily affected due to disposal of excavated material. The areas of disposed excavated material are ultimately expected to become naturally revegetated and regain a portion of their current productivity. If this does not occur, mitigation for impacts will be required to a level equal to the loss of habitat. The long-term status of the excavated area would change from its existing disturbed and nondisturbed condition to that of flowing water. The abandoned canal would eventually become revegetated with native plants, partially compensating for the loss of desert terrestrial habitat.

5.4 CANAL FISHERY

5.4.1 Conventional Lining Alternative

During the construction period, fish would be lost from the canal. As a worst-case estimate, construction could result in the short-term loss of all the fish in the sections of canal to be lined. After mitigation, as discussed under “Canal Fishery” in Chapter 3.0, populations would become reestablished to nearly their present levels. Accordingly, as mitigated, the long-term effect on the canal fishery would not be significant.

5.4.2 Underwater Lining Alternative

This alternative would not have a short-term effect on the canal fishery. The long-term effect would be the same as for the Conventional Lining Alternative.

5.4.3 Parallel Canal Alternative

This alternative would have the same short- and long-term effects on the fishery as the Conventional Lining Alternative.

5.5 CULTURAL VALUES

5.5.1 Conventional Lining Alternative

The noise and visual presence of heavy construction activity within several hundred feet of an area sacred to the Cahuilla Indian community would be adverse to the spiritual values held by the tribe. It would be a short-term impact (approximately one year at any specific location along the canal) which would not permanently affect the spiritual value of the area.

Placement of the bypass pipelines could lead to the discovery of some Native American burial or cremation sites. Placement of the pipelines is flexible and can be adjusted to avoid unearthing of sites. This would provide the option of preserving the sites in place or recovering material from the sites to permanently preserve their cultural value. Any Native American burial sites encountered during construction would be treated in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA). After mitigation, no significant long-term effects are expected.

5.5.2 Underwater Lining Alternative

The construction noise and visual presence of heavy equipment and their short duration would be similar to that expected for the Conventional Lining Alternative. Construction activities would involve only minimal disturbance of land adjacent to the canal and thus would not be expected to require recovery of local archaeological sites, leaving their discovery and assessment for the future. If such sites are encountered, proper procedures will be followed to recover and preserve artifacts, including compliance with the National Historic Preservation Act and NAGPRA. After mitigation, no significant long-term effects are expected.

5.5.3 Parallel Canal Alternative

Construction of the new canal could potentially unearth some Native American burial or cremation sites, the disturbance of which may be a concern to the Cahuilla Indian community. Any such resources within the area of potential effect would be treated in compliance with the National Historic Preservation Act and NAGPRA. In this respect, construction of this alternative may necessitate the recovery of archaeological sites that would otherwise be left for future discovery, or realignment of portions of the parallel canal. The recovery of such sites, where they cannot be avoided, would be a short-term impact to undisturbed areas, but after mitigation, no significant long-

term effects the archaeological resources are expected. This alternative would entail the long-term (permanent) abandonment of 33.2 miles of unlined canal, a potential historical resource impact.

5.6 RECREATION

Construction would temporarily hinder localized access of private vehicles to the canal bank road (which occurs through trespass) and at canal crossings provided by siphons. Upon completion of construction, total vehicular access area would be the same as before construction.

Construction activity would have short-term effects on fishing in the section of canal to be lined (which occurs through trespass). Upon completion of construction, the fishery would return to the numbers projected in Chapter 3.0 under “Canal Fishery.” Fishing may be allowed along portions of the lined canal between siphons 7 and 32 following the completion of project construction if liability issues can be resolved.

These short-term impacts and their relationship to long-term productivity would be essentially the same for each alternative.

5.7 TRANSPORTATION

Construction activity would cause increased traffic on the paved and unpaved roads in the vicinity of the canal, which may at times slow the present pace of vehicle travel. Construction would also temporarily hinder localized access of private vehicles along the canal bank road and at canal crossings provided by siphons. Upon completion of construction, vehicular circulation in the area is expected to be the same as before construction because the project would not foster increased recreation activity or promote population growth in the project area.

These short-term impacts and their relationship to long-term conditions would be essentially the same for each alternative.

5.8 AIR QUALITY

Construction of the various canal lining alternatives would generate significant, but short-term, air quality impacts, primarily related to fugitive dust emissions and construction equipment exhaust. With the exception of NO_x emissions for the parallel canal alternative, none of the alternatives would exceed *de minimis* thresholds during construction. No increase in long-term emissions would occur

under any of the alternatives as a result of this project. As such, short-term air quality impacts from this project would not significantly affect the long-term productivity of the existing environment.

5.9 SOCIOECONOMIC ASPECTS

Construction activity would have several short-term effects. The work would provide employment and income for the project area. An influx of contractor and construction management workers would cause a minor increase in population in the project area. The temporary personnel from outside of the project area would increase the occupancy of housing, hotels and motels, and RV campgrounds. Upon completion of construction, each of these short-term effects would end, and the respective socioeconomic aspect would return to the present condition. None of the alternatives would conflict with Executive Order 12898 regarding “Environmental Justice.”

These short-term impacts and their relationship to long-term productivity would be essentially the same for each alternative.

6.0 IRREVERSIBLE AND/OR IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable commitments are considered to be the permanent reduction or loss of a resource. Public Law 100-675 authorized the Secretary of the Interior to enter into an agreement with one or more California agencies for the construction or funding of the project. The evaluation of irreversible commitments was generally based on the assumption that once the canal is lined, the lining would be maintained in perpetuity.

6.1 SURFACE WATER

The project would reduce the amount of surface water discharged from springs and seeps along the canal associated with seepage. This would be an irreversible impact that would reduce the amount of surface water available for consumptive use by some marsh/aquatic and desert riparian vegetation types and local citizens who currently use, but do not have legal rights to, this discharge to irrigate domestic and commercial landscaping. From an overall California water supply perspective, however, the surface water would not be lost but would be transformed into a surface water supply available for use elsewhere. Also, where necessary, surface water would be diverted for mitigation purposes to offset project-related impacts to marsh/aquatic and desert riparian habitat.

6.2 GROUNDWATER

The project would reduce the canal's seepage contribution to the local groundwater by approximately 29,850 to 30,850 acre-feet per year. This would be an irreversible impact that would reduce the amount of groundwater available for consumptive use by marsh/aquatic and desert riparian vegetation types and reduce the amount of groundwater produced by various private wells under current conditions of well depth and casing integrity. The loss of groundwater to marsh/aquatic and desert riparian vegetation would be mitigated to less than significant levels. The owners of these wells do not have a legal right to canal seepage water. Within the CVWD service area, owners of affected wells could replace the lost water by direct purchase of domestic water from CVWD at standard rates.

From an overall California water supply perspective, the groundwater would not be lost but would be available as additional surface water supply.

Local, nonseepage-related groundwater may be pumped to maintain marsh/aquatic and desert riparian habitat, with preference given to nonpotable water. The groundwater used for this purpose would be permanently committed to the project. The amount, currently unquantified, would depend on the naturally renewable supply based on geohydrologic conditions. Also, surface diversion from the Coachella Canal for mitigation or water no longer lost as evapotranspiration through the eradication of salt cedar would offset most of these impacts.

6.3 CANAL FISHERY

The mitigation plan for project impacts on the canal fishery is intended to restore the number of shoreline gamefish—largemouth bass, sunfish, and flathead catfish. However, the numbers of channel catfish would be reduced by two percent (as mitigated), an irretrievable but not significant project impact.

6.4 CULTURAL RESOURCES

The alternatives may affect cultural resources to different degrees. The Conventional Lining and Underwater Lining alternatives would not, as mitigated, be expected to irreversibly affect these resources. Disturbance would occur primarily on the canal banks and waste piles. The impacts could result from other land disturbance associated with construction, such as contractor staging areas. Construction operations would be arranged so as to avoid areas of known cultural sensitivity. Any undisturbed land would be surveyed in detail for archaeological importance, and the sensitive locations would be avoided. Any Native American burial sites encountered during construction would be treated in compliance with NAGPRA.

The Parallel Canal Alternative could encounter (but would avoid to the extent possible) sensitive cultural sites. In the linear strip of land that the new canal would occupy, archaeological resources found during pre-construction surveys would be professionally recovered, documented, and preserved as appropriate. Any Native American burial sites encountered during construction would be treated in compliance with NAGPRA. In addition, this alternative would essentially abandon a 33.2-mile-long section of the existing canal, an irreversible effect on a potentially historical resource.

In compliance with Section 106 of the National Historic Preservation Act, Reclamation has reinitiated consultation with the State Historic Preservation Officer and started a new Native American contact program. The Section 106 compliance process will help further reduce the level of impact on any cultural resources that may be affected by the project.

6.5 LAND OWNERSHIP AND USE

The Conventional Lining Alternative and the Underwater Lining Alternative would not permanently require additional land for construction or operation. For the Underwater Lining Alternative, construction activity would be limited to the excavated canal, adjacent berms composed of material excavated during its original construction, and a minor amount of land to the west of the existing spoil piles from the discharge of material excavated from the canal. For the Conventional Lining Alternative, the bypass pipelines would cause temporary disturbance outside the are of the existing canal and spoil piles. Land acquired as mitigation would be anticipated to remain permanently undeveloped in order to maintain habitat value.

The Parallel Canal Alternative would irretrievably occupy approximately 873 acres of additional land, of which approximately 80 percent is currently undisturbed. The amount of land affected by parallel canal construction would be reduced if the embankment for the existing canal could be used as part of the embankment for the parallel canal. This would be offset by the abandonment of approximately the same amount of land occupied by the existing canal, which would be allowed to return to a natural state. This alternative could also entail the purchase and preservation of land as mitigation.

6.6 SAND AND GRAVEL

Sand and gravel used for the project would reduce the local supply available for other projects that may be considered in the region, an irretrievable commitment. The Conventional Lining Alternative would require approximately 105,000 cubic yards. The Underwater Lining Alternative and the Parallel Canal Alternative would require 520,000 and 120,000 cubic yards, respectively. As described in Section 3-16, it is expected that sand and gravel would be obtained from sources within the region, although this may require the development of new resources (e.g., the excavation of new sand or gravel quarries).

6.7 NON-RENEWABLE ENERGY SOURCES

The reduction in hydroelectric power generated along the Colorado river would be an irretrievable, but less than significant, change. The fuel used by construction equipment and the pumps to bypass the canal flow around the work would be an irretrievable commitment of fossil fuel.

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7.0 ENVIRONMENTAL COMMITMENTS

This chapter summarizes the environmental commitments made in this Final EIS/EIR for the Conventional Lining Alternative (preferred alternative). These include (1) project design features and other commitments that would avoid or minimize impacts, and (2) mitigation measures. The mitigation measures component of this chapter has been used as the basis for the Mitigation Monitoring and Reporting Program, pursuant to CEQA requirements.

7.1 PROJECT DESIGN FEATURES AND OTHER COMMITMENTS THAT WOULD MINIMIZE OR AVOID IMPACTS

7.1.1 Surface Water

- Large-capacity portable pumps would be positioned in the canal during dewatering activities. Since pumping operations usually require fuel storage, the selected contractor will be required to develop and implement a spill prevention and response plan.

7.1.2 Terrestrial Habitat

- The bypass pipe corridor would be cleared and graded only as much as needed to lay the pipe. Topsoil will be removed only where abrupt changes in the ground would require cutting a more gradual slope with a bulldozer. Elsewhere, construction would simply bend or crush vegetation above ground, which would allow regrowth. During periods of low water demand in the Coachella Canal service area, the width of the corridor required for the bypass pipelines would be reduced from the maximum of 65 feet, when less than five pipelines can bypass the flow.

7.1.3 Large Mammal Escape

- Large mammal entry and escape ridges and escape ramps at areas of high wildlife visitation would be incorporated into project design, including:
 - Escape ridges would be placed at 18-inch intervals on both sides of the canal, beginning 9 inches from the top edge of the lining and ending below the low operating level. The ridges would have a rough finish and be at least 1.5 inches high.
 - Escape ramps would be installed at high visitation wildlife watering sites, such as siphon 20.

- Deflector cables with buoys and booms would be installed and maintained on the upstream side of all siphons to direct large mammals to escape mechanisms.

7.1.4 Cultural Resources

- All cultural resource activities will be conducted in accordance with 36 CFR 800 and in consultation with the California State Historic Preservation Officer (SHPO), Bureau of Land Management (BLM) for public domain land, and, as appropriate, the Federal Advisory Council on Historic Preservation.
- Should any burial sites be encountered during construction, they will be treated pursuant to the procedures outlined in the Native American Graves Protection and Repatriation Act (NAGPRA).
- Prior to construction, a detailed construction plan will be developed. To minimize impacts, existing roads and staging areas will be used wherever possible. New borrow areas and access roads on undisturbed land will require a Class III survey. Existing borrow areas (other than the canal-bank spoil piles) and access roads will require a Class III survey unless the compliance process was completed within the past five years. All areas potentially affected, as well as areas to be disturbed for new habitat planting, will also have Class III surveys.
- Avoidance would be utilized to the extent possible.

7.1.5 Recreation and Canal Fishery

- Reclamation and CVWD anticipate that following the completion of the canal-lining project, legal fishing may be established between siphons 7 and 14 and siphons 15 and 32 if liability issues can be resolved.

7.1.6 Land Ownership and Use

- Privately owned land may be acquired (purchased) and transferred to federal or State agency ownership as part of project mitigation. Property owners would be compensated for the fair market value of their property in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601(1996)) and applicable state law (California Government code chapter 16 § 7260 et seq.).

7.1.7 Sand and Gravel

- During the project design phase, samples of sand and gravel from potential sources would be tested for suitability for project concrete. On the basis of such tests, a variety of sources would be certified for use on the project.
- During the design phase, an assessment would be made of the cultural and biological resources that may be affected by quarry activities at each certified site. Based on this assessment, potential disturbance of sensitive areas would be avoided by excluding the source, or impacts would be mitigated in conjunction with mitigation for canal construction. Environmental restrictions associated with certified sand and gravel sources would be included in the construction specifications. The construction specifications would allow the contractor to use one or more of the certified sources or request certification of another source of its choosing. If the contractor were to request using a source not previously certified and assessed environmentally, it would be required to comply with applicable requirements.
- Site reclamation plans will be prepared for surface mining operations on federal land, as well as Riverside County and Imperial County lands. These plans will be submitted to and approved by the affected agencies.

7.1.8 Transportation

- To minimize impacts, off-highway traffic hazards to the public will be addressed by implementation of a traffic control plan. The traffic control plan will be prepared by the construction contractor prior to the commencement of any construction or hauling activities. At minimum, the plan will address and outline appropriate vehicular speeds in construction areas; travel routes, detours, or lane closures; flag-person requirements; appropriate signage and safety reflectors; coordination with Imperial County Department of Public Works, and the California Department of Transportation (Caltrans); the location of staging areas; safety procedures to reduce hazards to motorists, bicyclists, and pedestrians; and emergency information. The traffic control plan will also address Border Patrol access in the area.
- Permits from Caltrans will be obtained, as necessary, for hauling material on State roads. Consultation with Caltrans regarding construction equipment use of State Highway 111 will also be conducted.

7.1.9 Public Safety

- Standard construction safety procedures will be incorporated into the plans and specifications for the canal lining project (restricting public access, safety fencing, worker safety policies, etc.) as well as a requirement for the contractor to develop and implement a traffic control plan.

7.2 MITIGATION MEASURES

7.2.1 Surface Water

No mitigation for surface water resources is required; however, flows in Salt Creek will be maintained at recent mean annual levels as mitigation for impacts to biological resources (see Section 7.2.4, “Marsh/Aquatic and Desert Riparian Habitat Along the Coachella Canal”).

7.2.2 Groundwater

No mitigation measures for impacts to groundwater are required (see Section 3.3).

7.2.3 Water Quality

No mitigation for water quality is required (see Section 3.4).

7.2.4 Marsh/Aquatic and Desert Riparian Habitat Along The Coachella Canal

- The flow regime in Salt Creek at USGS Stream Gauge 10254050 (near the mouth of Salt Creek at the Salton Sea) will be maintained. This assumes vegetation management along Salt Creek to ensure that consumptive use does not decrease water flow. Based on measured streamflows from 1996 through 1999, the mean annual flow at the USGS gauge is approximately 623 acre-feet per year (USGS 1996, 1997, 1998, 1999). The sources of water to be used are described in the following measure.
- Mitigation actions for impacts to marsh/aquatic and desert riparian habitat will be on an acre-for-acre basis based on ecological equivalency. The requirement for mitigation of unavoidable impacts to these habitat types are projected to be met through the following measures:

Maintain existing marsh/aquatic habitat	105	acres
Create additional marsh/aquatic habitat	17	acres
Restore/create additional desert riparian habitat	327	acres
Acquire private land and transfer title to BLM	575	acres

The proposed acreages for restoration/creation of additional desert riparian habitat and the acquisition of private land and subsequent transfer to the BLM may be changed in consultation with resource agencies, provided that these actions still provide mitigation on an acre-for-acre basis, based on ecological equivalency.

In the Dos Palmas ACEC, particularly in the Dos Palmas Preserve, located in hydrologic unit D between siphon 23 and siphon 29, much of the impacts to marsh/aquatic and some of the impacts to desert riparian habitat will be avoided. To accomplish this, water will be supplied upslope from the existing marsh/aquatic habitat areas and allowed to flow downstream through the marshes and ponds, where it will be collected into the mainstream of the north branch of Salt Creek. The water will then continue downstream to the mainstem of Salt Creek to maintain desert pupfish habitat and flow to the Salton Sea. This plan avoids impacts to 105 acres of marsh/aquatic habitat and 142 acres of desert riparian habitat. This assumes that there will be regular exotic species management along Salt Creek consistent with the *Dos Palmas Area of Critical Environmental Concern Management Plan*.

Any California fan palm, honey mesquite, screwbean mesquite, or cottonwood/willow community will be replaced, on an acre-for-acre basis, with like species or other suitable desert riparian/desert wash species such as smoke tree, palo verde, desert willow, and desert ironwood. Quailbush, suda, or wolfberry may be used to mitigate impacts to salt cedar, pampas grass, and sawgrass areas. Plantings of desert riparian shrubs (e.g., mesquite, indigo bush, desert senna, cat's claw acacia, cheese bush) will be interspersed with riparian tree species, whenever possible.

Specific planting sites will be selected based on physical and biological suitability criteria (e.g. soil electroconductivity and texture, depth to groundwater, topography, presence or absence of other vegetation) and avoidance of disruption of existing desert riparian and marsh/aquatic vegetation. Exact acreage, species composition, and location of the plantings will depend on the results of this site suitability analysis, but habitat created by the planted riparian vegetation will provide ecological equivalency of habitat lost or degraded due to the project. Where habitat restoration/creation occurs, plantings will be made to achieve a density of about 100 mature trees per acre.

In order of descending preference, the locations where marsh/aquatic and desert riparian mitigation measures will be implemented is as follows:

1. Dos Palmas ACEC.
 - a. BLM's Dos Palmas Preserve.
 - b. Areas adjacent to the Preserve.
 - c. Areas adjacent to other lands managed for wildlife.
2. Areas downslope from the canal on federal or state land with favorable soil electroconductivity and texture and other conditions (e.g., Frink Springs area).
3. Salton Sea shoreline areas including the marsh/aquatic habitat at the mouth of the Coachella Valley Stormwater Channel and within the Sonny Bono Salton Sea National Wildlife Refuge.

Mitigation at the Dos Palmas ACEC (preference 1) will follow the guidelines contained in the *Dos Palmas Area of Critical Environmental Concern Management Plan* (BLM 1998). Habitat restoration objectives contained in the management plan in Subsections B(2)(a) and (b) will be supported. Mitigation efforts on BLM property will be conducted under the direction of the BLM. It is probable that once specific mitigation actions for BLM property are identified, a trust fund will be established to allow the BLM to implement those measures directly, provided that the mitigation activities meet the performance standards described in this Final EIS/EIR.

Purchase of private land to be transferred to a resource agency (such as the BLM or State agency) for habitat management may also be included in the mitigation plan. This ratio of purchased land to revegetation was established by a biological work group during the initial project evaluation in the 1994 Draft EIS/EIR. Based on revised habitat boundaries and new figures, the basic mitigation plan currently envisions approximately 575 acres of land purchase and 327 acres of desert riparian revegetation on federal land. Land purchase will be consistent with Section III.A(1) of the *Dos Palmas Area of Critical Environmental Concern Management Plan*, which calls for the BLM to continue acquisition efforts within the ACEC.

Consideration will be given to a pilot revegetation program to test planting techniques in the sites selected for replacement vegetation. The initiation and scope of a pilot program would depend on the nature of the horticultural issues that would need to be resolved before the replacement vegetation is planted. This pilot revegetation program is considered to be consistent with Section

203(a)(2) of P.L. 100-675 which states that mitigation shall be implemented concurrent with construction of the works.

Operation and maintenance (O&M) activities for the replacement vegetation and the marsh/aquatic habitat to be preserved may be provided by one or more federal and State resource entities under an O&M plan to be developed during the design phase of the project. CVWD will manage water supplies provided from the canal for mitigation purposes. The O&M plan will be combined with existing resource management programs in the Dos Palmas ACEC, for efficiency and consistency. Land acquired for mitigation purpose may be transferred to a federal or State resource management entity.

The marsh/aquatic and desert riparian habitat mitigation plan will require additional sources of water; the specific quantity of water required will depend on the locations selected for development of new marsh/aquatic habitat and underlying soil types. Water requirements include water needed to maintain desert riparian and live stream conditions in certain reaches of Salt Creek and its north tributary for the benefit of the desert pupfish. Generally, the mitigation water operations will be arranged so that runoff from the marsh/aquatic habitat will supply the water requirements for pupfish habitat, which is currently the case. Water for mitigation will come from one or more of the following sources:

- Salt Cedar Removal. An acre of salt cedar in the project area consumes approximately 4.0 to 4.8 acre-feet of water per year depending on the density of the habitat (based on a Reclamation study of salt cedar and other desert riparian habitat water use from 1995 through 1998). To put this in context with regard to the project area, the salt cedar present in hydrologic unit D (which encompasses the Dos Palmas ACEC) consumes roughly 8,716 to 10,460 acre-feet of water per year. This is more than 13 times as much water as flows from Salt Creek into the Salton Sea (based on mean annual flows measured over the last four years). The *Dos Palmas Area of Critical Environmental Concern Management Plan* identifies salt cedar as, “One of the most prodigious water users in the Dos Palmas basin” (BLM 1998). The management plan further states that, “Control of tamarisk [salt cedar] may also offset the loss of water to native vegetation once the [Coachella] canal is cement-lined.” Accordingly, by removing salt cedar from the ACEC, the amount of water that needs to be supplied to this area to support mitigation could be reduced.
- Existing Discharges. For marsh/aquatic habitat and desert riparian habitat mitigation in the Dos Palmas Spring area, the discharge of existing wells and springs on BLM and the Center

for Natural Lands Management land that remains after the canal is lined would be available for this purpose, to the extent that there is water available over existing uses that are to continue. The use of this water would be arranged under a cooperative agreement with the Center for Natural Lands Management and BLM, who currently use water from these sources to supply ponds and marsh habitat in the Dos Palmas Spring area.

- New Wells. Additional water for mitigation could be obtained by drilling additional wells to develop non-potable aquifer water in the vicinity of the canal. Based on available geohydrologic information, it is estimated that up to 2,000 acre-feet of water would be available from this source annually. Congress authorized the development of groundwater from federal land for mitigation use in P.L. 100-675, which stipulated that priority be given to non-potable sources.
- Canal Diversion. Water diverted from the Coachella Canal would also be used for mitigation. Use of water from the canal for mitigation would reduce the net amount of conserved water available for conservation uses allowable under P.L. 100-675. Accordingly, although lining the canal would annually reduce seepage by approximately 30,850 acre-feet, because it is anticipated that up to 4,850 acre-feet per year of canal water would be managed by CVWD to support mitigation, the net (post-mitigation) yield of the proposed project is projected to be 26,000 acre-feet of conserved water per year.

A monitoring plan will be implemented by the project proponents to ensure the success of the mitigation effort. For mitigation in the Dos Palmas ACEC, monitoring would be consistent with management objectives stated in the *Dos Palmas Area of Critical Environmental Concern Management Plan*. A monitoring budget would be allocated from a trust fund established as part of this mitigation effort. For mitigation sites located outside the Dos Palmas ACEC, monitoring would be conducted monthly during the first and second year growing season, twice annually during years 3 through 5, and annually for years 6 through 10. The sites would then be monitored in post-planting years 15, 20 and 25. The mitigation plan would be reviewed after each survey year to determine if modifications to the plan or corrective actions would be required.

Criteria for survival of planted desert riparian trees or shrubs will be related to the natural survival rate of adjacent and similar stands of native desert riparian vegetation to account for natural soil conditions, including the gradual buildup of salt in the soil. Specific criteria will be developed during the design phase of the project.

- Mitigation for the Coachella Canal Lining Project’s incremental contribution to cumulative marsh/aquatic and desert riparian habitat impacts along the lower Colorado River will include the following components:
 - creation or restoration of 2.9 acres of backwaters along the lower Colorado River
 - creation of 24 to 73 acres of willow flycatcher habitat along the lower Colorado River, with the specific amount of creation to be determined based on the monitoring results and the guidance provided in the “Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California and Nevada” (FWS 2001).

In addition, mitigation for the proposed project’s incremental contribution to cumulative impacts along the lower Colorado River will include providing an incremental portion (6.5 percent) of the funds necessary to monitor 372 acres of currently saturated willow flycatcher habitat along the river that may be cumulatively affected by the water conservation and transfer projects. This mitigation is consistent with the conservation measures identified in the above-referenced Biological Opinion, and it would offset the Coachella Canal Lining Project’s incremental contribution to cumulative marsh/aquatic and desert riparian habitat along the Colorado River.

7.2.5 Terrestrial Habitat

The locations of the bypass pipelines will be flexible and will avoid valuable habitat, particularly established trees and areas with relatively healthy stands of desert shrubs. The alignment of the temporary bypass pipelines shall be based on the following criteria:

- Use terrain with the least amount of surface irregularity to minimize surface disturbance and topsoil disturbance.
- Minimize risk of flash flood disturbance to bypass facilities.
- Use existing roads or trails to the extent practicable.
- Minimize disturbance of vegetation that would not otherwise be adversely affected by the project. Limit disturbance to crushing rather than clearing, where possible.
- Minimize disturbance to private and public improvements along the canal, including flood control dikes.

- Upslope from the canal, keep bypass pipes as close to the canal as possible but avoid the band of desert wash vegetation that tends to lie close to the upstream edge of the spoil bank from original construction.
- Downslope from the canal, where a choice must be made, disturb seepage-dependent vegetation rather than more xerically adapted desert wash vegetation. The seepage-dependent vegetation lost would be compensated as described in the mitigation plan for desert riparian habitat. Non-seepage-dependent vegetation that is crushed by construction activities would regenerate naturally.

Pipe placement will take into consideration the presence of any sensitive archaeological resources encountered during pre-construction surveys.

The loss of mature trees of ironwood, palo verde, and mesquite that cannot be avoided will be mitigated by replanting two trees for every one tree destroyed. Tree survival will be monitored for five years, and those which do not survive planting will be replaced to ensure that the 2:1 ratio is achieved. Similarly, replacement trees will be planted for trees that, after five years, do not meet standard mitigation success criteria for the individual species (e.g., tree height, diameter at breast height). Where desert washes are disturbed, the ground surface will be recontoured to approximate pre-construction conditions.

7.2.6 Special Status Species

Measures developed during previous and ongoing consultation with FWS are expected to avoid impacts to Yuma clapper rail, southwestern willow flycatcher, least Bell's vireo, desert pupfish, desert tortoise, and California black rail.

Habitat for the Yuma clapper rail and California black rail would be maintained through the preservation or replacement of marsh/aquatic areas as described in Section 7.2.4. The measures described in Section 7.2.4 would also mitigate for the loss of potential migration habitat for the southwestern willow flycatcher and least Bell's vireo.

Impacts to desert pupfish will be mitigated by maintaining the flow of water in the Dos Palmas upper and lower ponds and in the north branch of Salt Creek. This will be achieved by maintaining flows of water for that purpose from sources described in Section 7.2.4. Based on measured streamflows from 1996 through 1999, the mean annual surface flow at USGS gauge number 10254050 is approximately 623 acre-feet per year (USGS 1996, 1997, 1998, 1999).

The desert tortoise has a slight potential to occur in the affected environment. Impacts are possible, but unlikely. If encountered during preconstruction surveys and during construction monitoring, desert tortoises would be relocated as prescribed by the FWS to avoid impacts. Any burrows, if present, would be reconstructed outside of the construction footprint.

Impacts to the razorback sucker are not expected to occur in the canal. As a precautionary measure, basket strainers would be used at bypass system pump intakes to avoid incidental take of razorback sucker. The basket strainers will be designed such that intake flow velocities at the periphery of the strainer mesh will be low enough to allow razorbacks to escape, and with a mesh size small enough to restrict uptake of juvenile through adult size classes. Razorbacks will be recovered in cooperation with DFG during the draining of each canal section in conjunction with the canal fishery and grass carp recovery effort described in Section 3.11.3.

Where blading is required, topsoil would be stockpiled and redistributed upon completion of construction to promote revegetation.

The Coachella Canal Lining Project's incremental contribution to cumulative special status species impacts along the lower Colorado River would be offset by the measures described in Section 7.2.4 and through two additional measures which address cumulative impacts to the razorback sucker and the bonytail chub, respectively. Potential incremental contributions to cumulative razorback sucker impacts will be offset by stocking 1,300 razorback suckers at least 25 centimeters (approximately 10 inches) or greater in length in the Colorado River between Parker Dam and Imperial Dam. Mitigation for impacts to bonytail chubs will be to provide \$3,250 (of a \$50,000 total) to the bonytail hatchery program described in the "Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, Water Administration, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California and Nevada" (FWS 2001).

7.2.7 Large Mammal Escape

A monitoring program to document the effectiveness of the entry/escape ridges and other escape mechanisms, such as the escape ramps in the area of high wildlife visitation (such as siphon 20), will be conducted on the lined Coachella Canal. Monitoring will be completed during the first summer following construction. If the first season's observations conclusively reconfirm the effectiveness of the entry/escape ridges and strategically placed escape ramps, the monitoring program will be concluded. If not, monitoring will continue for a second season. If the monitoring program indicates

that the ridges and escape ramps are insufficient, additional conventional escape ramps as described in Section 3.10.3 or other escape mechanisms will be added to the lined canal.

7.2.8 Canal Fishery

Construction (temporary) impacts to canal fisheries would be mitigated through the following measure:

- When construction activities are complete, channel catfish will be stocked (one time only) at rates of up to 105 pounds per mile to compensate for losses during construction.

Mitigation for permanent impacts to the canal fishery would be as follows:

- Eighty-two 16- by 50-foot artificial reefs will be installed and maintained in the newly lined portion of the Coachella Canal. The reefs will be made of tires bound together into mats and anchored to the canal side at a level to ensure submergence.
- Reclamation, in cooperation with FWS, DFG, and CVWD, would determine the location of the reefs in the canal.

If the artificial reefs are not as effective as expected, a one-time stocking of channel catfish at a maximum rate of 105 pounds per canal mile will be implemented. Reclamation and CVWD may elect alternative means to increase the ability of the lined canal to support an equivalent level of fish as would be provided by the artificial tire reefs.

7.2.9 Cultural Resources

The following mitigation measures will reduce impacts to cultural resources a less than significant level:

- Continuation of consultations with the Cahuilla Indian community and other area Native American tribal organizations should serve to recognize their interests and develop appropriate solutions to any issues. If impacts occur, mitigation would consist of professional recovery of cultural resources or development, where possible, of means to avoid impacts.
- Based on the canal's age and its importance to the development of the Coachella Valley, the canal may be eligible for (and is therefore assumed to be eligible for) the National Register of

Historic Places; therefore, the effects of lining the canal may be considered a significant historical resource impact. These impacts would be mitigated through appropriate documentation of pertinent information about the canal, such as a Historic American Engineering Record. The extent to which additional measures may be required for compliance with Section 106 of the National Historic Preservation Act will be determined in consultation with the State Historic Preservation Officer.

7.2.10 Recreation

Potentially significant impacts to recreation will be avoided through incorporation of the following mitigation measure:

- Off-highway vehicle access along the Bradshaw Trail will be maintained during construction (for example, by posting signs directing visitors to alternate locations where they may cross the Coachella Canal when siphon 24 is blocked by construction activity).

7.2.11 Air Quality

The following mitigation measures will mitigate fugitive dust impacts during project construction to below federal Clean Air Act General Conformity *de minimis* thresholds, but not to less than South Coast Air Quality Management District (SCAQMD) significance thresholds.

- Contractors will perform excavation, grading, materials handling, and hauling of materials in compliance with SCAQMD Rule 403, Fugitive Dust and ICAPCD Rule 800, Fugitive Dust Requirements for Control of Fine Particulate Matter (PM-10). Specific measures to be included in construction specifications will address the maintenance of adequate moisture content in soils to be excavated and transported; the stabilization of exposed graded areas; the cleaning of paved roads to be used as haul roads; paving or alternate treatment of unpaved roads considered for haul roads; and prevention of soil track-out from construction areas onto paved roads. Where required, contractors will obtain approval of dust control plans from the respective AQMD or APCD prior to the start of work.
- The construction contractor will obtain applicable air quality permits for the batch plant and any portable or stationary internal combustion engine subject to SCAQMD or ICPACD permit requirements.

- To reduce fugitive dust, the excavation site and the stockpile material will be watered twice a day and the unpaved roads would be watered every 45 minutes (the frequency of watering would differ for the Underwater Lining Alternative and Parallel Canal Alternative).
- Truck speeds on unpaved roads will not exceed 30 miles per hour.
- All trucks hauling materials subject to wind dispersal will be watered and covered.
- All disturbed soil areas not subject to revegetation will be stabilized with approved nontoxic soil binders, jute netting, or other methods, as appropriate. In particular, this applies to excavated soil placed along the banks of the canal.
- Where feasible, the construction contractor will use electric power from poles.
- Idling time of trucks and other construction equipment will be minimized.

7.2.12 Public Safety

With the incorporation of escape ladders, escape ridges, and (in areas of high wildlife visitation) escape ramps, the proposed project will materially reduce the drowning hazard associated with the canal. Accordingly, no public safety mitigation measures are required.

8.0 CONSULTATION AND COORDINATION **LEAD AND COOPERATING AGENCIES**

Reclamation is the lead agency for development of the project plan because it owns the canal. Cooperating agencies are CVWD, which operates the canal and is interested in the increased operational flexibility of a fully lined canal would provide, and MWD, which has an interest in the project because of the additional usable water supply that the project would provide. Reclamation is also the lead agency for compliance with NEPA, and CVWD is the lead agency for compliance with CEQA. MWD is a potentially Responsible Agency under CEQA. The impact analysis for this project and the development of mitigation plans has also included cooperation with the FWS, DFG, and BLM.

The State of California is providing funding for the Coachella Canal Lining Project under California Water Code §12560 et seq., as described in Section 1.4, “Authorization.”

8.1 PUBLIC INVOLVEMENT

In accordance with all applicable NEPA and CEQA requirements the Revised and Updated Draft EIS/EIR was circulated for a 60-day public review period from Friday, September 22, through Tuesday, November 21, 2000. Comments received on the Revised and Updated Draft EIS/EIR are included in Volume II of this Final EIS/EIR. Comments received on the 1994 Draft EIS/EIR are also included in this document as Attachment G in Volume I. This Final EIS/EIR includes revisions made in consideration of those public comments. Written responses to the comments received on the Revised and Updated Draft EIS/EIR are also included in Volume II of this Final EIS/EIR.

Public involvement with interested groups and individuals has played an important role in the planning process for this project. In preparation of the previous Draft EIS/EIR, a Notice of Intent to file an EIS was issued in February 1988. In April 1988, a public meeting was held in Coachella, California, to identify issues or concerns from the public. Public scoping meetings were also held on September 20, 1989, and on December 15, 1992, in Bombay Beach, California, to further identify issues and provide information to the public on the project plan. A second Notice of Intent, which addressed the Revised and Updated Draft EIS/EIR, was published in the *Federal Register* on July 25, 2000 (65 FR 45799). No public notice is required under CEQA for recirculating a revised Draft EIR. Pursuant to NEPA, the Notice of Availability for the Revised and Updated Draft EIS/EIR was published in the *Federal Register* on Friday, September 22, and pursuant to NEPA and CEQA, a

joint Notice of Availability/Notice of Completion was published in the *Desert Sun* and *Imperial Valley Press* newspapers in eastern Riverside and northern Imperial counties, respectively. These notices included announcements for a public hearing on the Revised and Updated Draft EIS/EIR, which was held on Wednesday, October 25, 2000, at the CVWD in Coachella. Additional announcements on the public meeting were published the week before the meeting, the day before the meeting, and the day of the meeting in both the *Desert Sun* and *Imperial Valley Press* newspapers. Copies of the Notice of Availability and meeting announcements and a transcript of the public meeting are included in Volume II of this Final EIS/EIR.

In addition to the various public meetings held as part of the EIS/EIR preparation process, Reclamation chaired various interagency work groups to assess potential project impacts and to recommend mitigation. A biological work group represented three federal agencies (Reclamation, FWS, and BLM)¹, one State agency (DFG), and three local agencies (CVWD, MWD, and IID). The biological work group, through its numerous meetings, achieved concurrence among the involved agencies on the criteria for evaluating project effects on, and scoping mitigation measures for, marsh/aquatic and desert riparian habitat (referenced as “wetlands” in the previous Draft EIS/EIR) along the canal and various other biological resources. The framework for impact analysis and mitigation developed by the biological work group remain the basis for this revised document, although specific mitigation has been revised to reflect a reassessment of salt cedar’s habitat value and BLM’s 1998 *Dos Palmas Area of Critical Environmental Concern Management Plan*. Additional consultation with these resource agencies will be conducted during preparation of final mitigation plans.

The large mammal entry/escape work group consisted of one representative each from a federal, State, local, and private agency. This group met three times to evaluate the effectiveness of the escape steps. (See Section 3.10, “Large Mammal Escape.”)

Numerous meetings with the various agencies and one-on-one contacts were a part of the study process. Field work required contact with local owners and various city, county, and local agencies and departments. Other interagency environmental meetings included the Prototype In-Place Canal Lining Project environmental scoping meeting and the Coachella Canal Lining Project environmental scoping meeting.

¹ The Environmental Protection Agency and the U.S. Army Corps of Engineers were unable to participate but were routinely provided with copies of work group proceedings.

At various points in the study, Reclamation provided news releases and fact sheets about the study to keep the public informed. The Prototype In-Place Canal Lining Project (between siphons 14 and 15) received national coverage in technical periodicals.

8.2 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

NEPA is the nation's broadest environmental law, and it applies to all federal agencies and most of the activities they manage, regulate, or fund that affect the environment. NEPA requires that environmental consequences and project alternatives be considered before a decision is made to implement a federal project. NEPA has established requirements for preparation of an EIS for projects potentially having significant environmental impacts. Specifically, this Final EIS/EIR has been prepared in accordance with the requirements set forth in Section 102 of NEPA and CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 C.F.R. 1500 et seq.). A reasonable array of alternatives were considered during the planning process. Potential environmental effects have been included in the evaluation of each of the proposed alternatives, and all procedural review requirements of the aforementioned rules and regulations have been met as part of the EIS process.

Reclamation is the lead federal agency for NEPA compliance.

8.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

CEQA requires State and local agencies to disclose and consider the environmental effects of their proposed actions. It further requires agencies, when feasible, to avoid or reduce the significant environmental impacts of their decisions. This document meets the goals, policies, and requirements of CEQA. Information and analysis to meet CEQA requirements are included within this Final EIS/EIR.

CVWD is the Lead Agency for CEQA compliance, and MWD is a potential Responsible Agency under CEQA.

8.4 EXECUTIVE ORDER 11990 FOR PROTECTION OF WETLANDS

The analysis of project effects on wetland habitat, principally marsh/aquatic habitat areas, and the development of mitigation measures to avoid those impacts were coordinated with FWS and DFG to comply with wetland habitat policies. Copies of correspondence, reports, and decisions were also

sent to the U.S. Army Corps of Engineers (USACOE) and the Environmental Protection Agency (EPA), as generated. Coordination with these agencies included continued informal contacts and formal correspondence. (As stated in Section 8.6, the USACOE has indicated that the project is not subject to its jurisdiction under Section 404 of the Clean Water Act.) These agencies' wetland vegetation policies would also be satisfied by the mitigation programs developed for the project.

8.5 EXECUTIVE ORDER 11988 FOR FLOODPLAIN MANAGEMENT

The project would not involve construction or other activity on a floodplain and, thus, would not affect flood damage potential.

8.6 CLEAN WATER ACT

Following coordination with the USACOE through the activities of the biological work group in 1993, described above in this chapter and in Section 3.5, "Marsh/Aquatic and Desert Riparian Vegetation Along the Coachella Canal," coordination was maintained with the USACOE and EPA regarding the effect of the project on jurisdictional wetlands habitat. At the conclusion of this process, the USACOE advised Reclamation of its determination that the project is not subject to its jurisdiction under Section 404 of the Clean Water Act.

A Clean Water Act Section 401 permit administered by the California Regional Water Quality Control Board (RWQCB), Colorado River Basin, would be obtained for this project. Section 401 requires certification from the RWQCB that the proposed project is in compliance with established water quality standards.

In compliance with Section 402, a National Pollution Discharge Elimination System (NPDES) Permit would be obtained and a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented during project construction. An NPDES General Permit is required for construction activity that will disturb five acres or greater and will discharge stormwater runoff from the construction site into waters of the United States (which can include desert washes). The permitting authority for projects in California is the State Water Resources Control Board, Stormwater Permits Section.

8.7 FISH AND WILDLIFE COORDINATION ACT COMPLIANCE

In compliance with the Fish and Wildlife Coordination Act and amendments thereto, Reclamation consulted with FWS on all biological aspects of the project. This consultation process has been facilitated by including FWS in the biological work group during development of the 1994 Draft EIS/EIR. FWS evaluated the proposed project and submitted its analysis and recommendations to Reclamation in a Coordination Act Report during preparation of the previous Draft EIS/EIR (FWS 1993). On September 19, 2000, FWS provided a memorandum to Reclamation indicating that the previous Coordination Act Report for the proposed project is still adequate to meet the needs of the Fish and Wildlife Coordination Act (see Attachment H in Volume I of this Final EIS/EIR.)

8.8 ENDANGERED SPECIES CONSULTATION (SECTION 7 CONSULTATION)

In February 2001, Reclamation initiated informal consultation with FWS for the proposed action (letter, Jim Cherry, Manager, Reclamation, Yuma Area Office, to Ken Berg, Field Supervisor, Carlsbad Field Office, February 23, 2001). As a follow-up, Reclamation met with FWS staff at the Carlsbad Field Office on March 2, 2001, to review the contents of the letter, and to discuss FWS comments on the Revised and Updated Draft EIS/EIR as well as the need, if any, for further information and data collection, impacts analyses, and development of a mitigation plan to ensure no net loss of habitat for protected species if the project is implemented. This ongoing informal consultation is an extension of the Endangered Species Act consultations that occurred in association with the previous environmental documentation for the proposed Coachella Canal Lining Project, are summarized below.

In compliance with the federal Endangered Species Act, Reclamation requested and received a list of federal threatened, endangered, and candidate species from FWS in 1988. This list was updated in 1991, 1993, and 2000. Reclamation prepared a Biological Assessment (BA) in July 1989 and a supplemental BA in July 1993. In July 1993, Reclamation entered into formal consultation with FWS because of potential effects to the Yuma clapper rail, desert pupfish, and desert tortoise. FWS recommended addressing California black rail during formal consultation because of its potential listing in the near future. When the project was postponed in 1994, the consultations with the FWS were also put on hold. They have been reinitiated as described above. The canal lining project will not be implemented until the Section 7 consultation process is complete.

8.9 NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE

In 1989, Reclamation formally advised the California State Historic Preservation Officer (SHPO) of the proposed project and initiated consultation with SHPO in compliance with Section 106 of the National Historic Preservation Act. The California SHPO acknowledged the initiation of consultation at the time the previous Draft EIS/EIR was being prepared. Additional SHPO consultation is currently being conducted. In addition, Reclamation has initiated a Native American contact program to ensure that their concerns are adequately addressed in this process. In accordance with the consultation process, Tribes identified as having an interest in the project were contacted by Reclamation in July 2000 to obtain input.

Should any Native American grave sites or associated funerary objects be discovered during construction, they will be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. § 3001 (1996)). NAGPRA addresses the rights of lineal descendants and members of Indian Tribes and Native Hawaiian organizations to certain Native American human remains and cultural items with which they are affiliated.

8.10 EXECUTIVE ORDER 12989, “ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS” (59 Fed. Reg. 7629 [1994]).

This Executive Order is designed to focus federal attention on actions that affect environmental and human health conditions in minority and low-income communities. Information access and public participation are also a focus of the Executive Order. Reclamation has encouraged public participation through public workshops and meetings as described in Section 8.1. None of the project alternatives would disproportionately affect low-income or minority populations (see Section 3.21, “Socioeconomic Aspects”).

8.11 EXECUTIVE ORDER 13045, “ENVIRONMENTAL HEALTH AND SAFETY RISKS TO CHILDREN” (62 Fed. Reg. 1988 [1997]).

On April 21, 1997, this Executive Order was signed by President Clinton. It is designed to focus federal attention on actions that affect human health and safety conditions that may disproportionately affect children. Executive Order 13045 requires that federal agencies, to the extent permitted by law, and appropriate and consistent with the agency’s mission, shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. This Executive Order also requires each federal agency to ensure

that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. Consistent with this Executive Order, the Coachella Canal Lining Project would not disproportionately affect children.

8.12 FEDERAL UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970 (42 U.S.C. § 4601 [1996]).

In order to acquire private property, the Federal Government must follow guidelines set forth under the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601 (1996)). The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act was created to ensure that (1) owners of real property to be acquired for federal and federally assisted projects are treated fairly and consistently; (2) persons displaced as a direct result of federal or federally assisted projects are treated fairly; and (3) agencies implement these regulations in a manner that is efficient and cost effective. The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act also contains provisions for just compensation, policies for acquisition, and relocation requirements. As described in Section 3.15, The Parallel Canal Alternative could include the acquisition of as much as 31 acres of undeveloped private land for canal right-of-way. Each of the alternatives, except the No Action Alternative, would include land purchase to help mitigate impacts to desert riparian habitat (see Section 3.5). Reclamation and CVWD will comply with this act for any mitigation-related acquisition of private property.

8.13 MINING AND RECLAMATION ACT OF 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) applies to any surface mining operations in California (including those on federally managed lands) which disturb more than one acre or remove more than 1,000 cubic yards of material. For this project, Riverside and Imperial counties are the lead agencies under SMARA. Coordination with these agencies regarding the extraction of aggregate for manufacture of concrete will be initiated during the project design phase as specific sources are tested and certified for project use.

8.14 RECLAMATION'S INDIAN TRUST POLICY

There are two Indian Trust Assets that either occur in the vicinity of the Coachella Canal or that may be affected by the proposed project: (1) the Torres-Martinez Indian Reservation and (2) facilitation of implementation of the San Luis Rey Indian Water Rights Settlement Act. The canal lining

alternatives would have no adverse impacts on these trust assets. In contrast, the proposed action would help facilitate implementation of the San Luis Rey Indian Water Rights Settlement Act, which would be considered a beneficial effect. The avoidance of significant impacts to Indian Trust Assets is consistent with Reclamations Indian Trust Asset Policy which states:

Reclamation will carry out its activities in a manner which protects trust assets and avoids adverse impacts when possible. When Reclamation cannot avoid adverse impacts, it will provide appropriate mitigation or compensation. (Reclamation 1993b)

8.15 CLEAN AIR ACT AND STATE IMPLEMENTATION PLAN

With the exception of NO_x emissions during construction of the Parallel Canal Alternative, controlled (mitigated) emissions would not exceed annual *de minimis* thresholds for any of the alternatives. For the Parallel Canal Alternative, coordination with the South Coast Air Quality Management District (SCAQMD) and the Imperial County Air Pollution Control District (ICAPCD) would be required to ensure that the proposed project is in conformance with these districts' State Implementation Plans (SIPs).

8.16 AIR QUALITY PERMITS

For each alternative, the batch plant and any stationary engines greater than 50 horsepower, as may be required for the batch plant and pump in areas where no power lines are located, would be permitted sources. Either a State or district permit would be required for operation of these sources.

8.17 EXECUTIVE ORDER 13132, "FEDERALISM"

Executive Order 13132 was signed into effect on August 4, 1999, to guarantee the division of government responsibilities between the national government and the states by guiding executive departments and agencies through the preparation and implementation of policies. Federal agencies taking national actions that limit the policy-making discretion of states shall carefully assess the necessity for such action, and such actions shall only be taken where there is constitutional and statutory authority and the national action is appropriate in light of the presence of a problem of national significance. The Coachella Canal Lining Project would not create policies that place new restrictions on State or local government agencies; rather, the project reflects a coordinated effort between federal, State, and local agencies to conserve water. Based on these factors, the Coachella Canal Lining Project does not conflict with Executive Order 13132.

8.18 EXECUTIVE ORDER 13084, “CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS.”

Executive Order 13084 was signed on May 14, 1998. This Executive Order states that the United States recognizes Indian tribes as dependant nations whom exercise sovereign powers over their members and territory, and it also states that the U.S. will continue to work with Indian tribes on a government-to-government basis. The canal lining project would involve the continued consultation and coordination with the Augustine Reservation, Barona Reservation, Cabazon Band of Mission Indians, Cahuilla Band of Mission Indians, Campo Band of Mission Indians, Cuyapaipe General Council, Torres-Martinez Band of Mission Indians, Twentynine Palms Band of Mission Indians, and the Viejas Reservation. In addition, the proposed action would help facilitate the implementation of the San Luis Rey Indian Water Rights Settlement Act (P.L. 100-675 Title I). Accordingly, the proposed action would be in compliance with this Executive Order.

8.19 POSSIBLE PERMITS AND AGREEMENTS

Table 8-1 shows necessary permits and other coordination activities that may be needed for the construction program.

Table 8-1. Possible Permits and Agreements

Agency	Action or activity
<u>Federal Government</u>	
Department of the Interior	Construction or Funding Agreement setting the conditions under which the project will be financed, constructed, and operated.
Bureau of Land Management	Agreement to manage public domain land for establishment of mitigation habitat. Permit to use public domain land for access and for construction activities. Approval of site reclamation plan for quarry activities on federal land.

Table 8-1. Possible Permits and Agreements (continued)

Agency	Action or activity
<u>State of California</u>	
Historic Preservation Officer	Approval of archaeological and cultural recovery plans.
	Concurrence that the proposed project would not affect a historic property (as defined in 36 C.F.R. Part 800.16)
Department of Water Resources	Access State funds appropriated for project implementation by Section 12560, et seq. of the California Water Code.
Department of Fish and Game	Section 1601 agreement for streambed alteration at wash crossings (siphons).
	Approval of project’s mitigation measures pursuant to section 12565(c) of the California Water Code.
Department of Transportation (Caltrans)	Permit for hauling material on State roads; coordination regarding construction equipment use of State Highway 111.
<u>Local Entities</u>	
Regional Water Quality Control Board	Section 401 (water quality certification or waiver).
	Section 402 (NPDES Permit and SWPPP for construction water discharge).
Cahuilla Indian Tribe and other interested Native American Tribal Organizations.	Coordination with respect to archaeological and cultural remains found during surveys and construction.
South Coast Air Quality Management District	Air quality permit for construction (batch plant and stationary engines over 50 horsepower). Finding that the proposed project is in conformance with the district’s SIP (Parallel Canal Alternative only).

Table 8-1. Possible Permits and Agreements (continued)

Agency	Action or activity
Imperial County	Approval of site reclamation plan for new quarry activities on non-federal land.
	Encroachment permit from the Department of Public Works for road maintenance and dust control; permit for material hauling on County roads
Imperial County Air Pollution Control District	Air quality permit for construction (batch plant and stationary engines over 50 horsepower). Finding that the proposed project is in conformance with the district's SIP (Parallel Canal Alternative only).
Coachella Valley Water District	Coordination of construction activities with water deliveries.
Southern Pacific Railroad	Crossing agreement and coordination of construction at railroad crossing over canal.
MWD/IDD/PVID/San Luis Rey Settlement Parties	Allocation of water agreement entered into pursuant to section 12562(a)(2) of the California Water Code.

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9.0 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

Section 15126.2(b) of the State CEQA Guidelines requires that an EIR describe “any significant impacts, including those which can be mitigated but not reduced to a level of insignificance.” The Guidelines also state that “where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.”

Of the four alternatives analyzed in this EIS/EIR (Conventional Lining, Underwater Lining, Parallel Canal, and No Action), all but the No Action Alternative would exceed South Coast Air Quality Management District (SCAQMD) CEQA significance thresholds for PM₁₀. The Underwater Lining and Parallel Canal alternatives would also exceed SCAQMD significance thresholds for NO_x. Although these air quality impacts would be considered significant under CEQA, they would not cause significant effects to the environment because the pollutants would be carried by prevailing winds to disperse over the uninhabited Chocolate Mountains Aerial Gunnery Range and because 97 percent of the project area is undeveloped.

The Parallel Canal Alternative may (pending consultation with the State Historic Preservation Officer) also result in a significant unavoidable historical resource impact. Unlike the Conventional Lining or Underwater Lining alternatives, the Parallel Canal Alternative would essentially result in the abandonment and replacement of the existing unlined canal section. Based on the canal’s age and its importance to the development of the Coachella Valley, it is potentially a significant historical resource. Accordingly, the historical resource impacts of this alternative may be unmitigable, but this would need to be determined as part of the reinitiated consultations with the State Historic Preservation Officer.

All of the canal lining alternatives analyzed in this EIS/EIR include measures for (1) the replacement of incidental fish and wildlife values adjacent to the canal that are forgone as a result of lining the existing canal, and/or (2) mitigation of impacts on fish and wildlife resources resulting from construction of the lined canal that would reduce these effects to a less than significant level. The mitigation measures were developed on an acre-for-acre basis, based on ecological equivalency, and would be implemented concurrent with construction of the works, at non-federal expense.

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10.0 INDEX

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