Chapter 4 Cumulative Effects and Other Issues Required by NEPA

This section evaluates the cumulative effects of the Proposed Action, as well as the potential for the Proposed Action to induce growth, and any irreversible and irretrievable commitments of resources that would occur if the Proposed Action was implemented.

4.1 Cumulative Impacts

NEPA (40 CFR 1508.7 and 1508.25(a) (2)) requires the analysis of the cumulative impacts of a proposed action in combination with those of other actions. A cumulative impact is the change in the environment that results from the incremental impact of a project when added to other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant impacts taking place over time.

The following projects were identified after consultation with relevant federal, state, and local agencies and review of other current environmental documents being prepared in the vicinity of the Proposed Action. The cumulative impacts of these projects in combination with the Proposed Action are addressed in Section 4.1.2.

4.1.1 Projects included in the Cumulative Impact Analysis

4.1.1.1 Bay-Delta Conservation Plan

The BDCP is being developed as a collaborative process to set near-term and long-term approaches to meet the following objectives: (1) providing for the conservation of covered species and their habitats, (2) addressing the requirements of the federal and state endangered species laws, and (3) improving water supply reliability. Specifically, the BDCP would serve as a habitat conservation plan that satisfies the requirements of Section 10 of the federal ESA and provide the basis for consultations between Reclamation, USFWS, and NMFS under Section 7 of the ESA. The BDCP would also provide the basis for compliance with State law under the Natural Communities Conservation Planning Act and/or the CESA. Successful completion of the plan approval process will result in long-term "take" authorizations for covered activities, including certain water operations of the SWP and CVP, and operations of certain Mirant Delta power plants. The plan is expected to achieve these objectives through a number of actions: habitat restoration and enhancement to increase the quality and quantity of habitat in the Delta; other conservation actions to help address a number of stressors on covered species; conveyance facilities to enhance operational flexibility and water supply reliability; water operations; and a comprehensive monitoring, assessment, and adaptive management program.

The planning area for the BDCP is the Statutory Delta as defined in California Water Code Section 12220. The Statutory Delta includes parts of Yolo, Solano, Contra Costa, San Joaquin,

and Sacramento counties. However, it may be necessary for the BDCP to include conservation actions outside of the Statutory Delta that advance the goals and objectives of the BDCP within the Delta, including as appropriate, conservation actions in the Suisun Marsh, Suisun Bay, and areas upstream of the Delta. The BDCP is currently evaluating the species and action for which coverage will be sought.

An EIR/EIS that will assess the potential impacts of BDCP implementation is in development by DWR, the lead agency under the California Environmental Quality Act, and Reclamation, NMFS, and USFWS, the federal lead and co-lead agencies under NEPA. The EIR/EIS will analyze the impacts of alternative conservation actions, including improved water conveyance infrastructure in the Delta (e.g., dual or isolated conveyance systems or a tunnel). The new conveyance system options being considered include a series of screened intake structures, pump stations, canals and pipelines (including the potential for a tunnel under the western Delta), siphons and a new forebay. Also considered is a "through Delta" alternative that would use many of the existing channels along the eastern Delta. Each conceptual conveyance system options would more directly connect the Sacramento River to the SWP Banks and the CVP C.W. "Bill" Jones (Jones) pumping plants near Tracy. The EIR/EIS will also analyze the impacts of alternative water operations and management actions to achieve conservation and water supply reliability goals. Although the Proposed Action is identified in the BDCP as an action taking place in the Delta, it has separate utility and is not dependent on the implementation of the BDCP.

A Notice of Preparation/Notice of Intent of the EIR/EIS was prepared in March 2008. A public draft of the EIR/EIS is expected to be released in 2010. Given the complexity of the BDCP, it is likely that its full implementation would be outside of the five-year horizon established for the Proposed Action.

4.1.1.2 Contra Costa Water District and U.S. Bureau of Reclamation Alternative Intake Project

The Alternative Intake Project is a drinking water quality improvement project that would protect and improve delivered water quality for CCWD customers by enabling the CCWD to relocate some of its existing diversions to Victoria Canal, a Delta location with better source water quality than is currently available at its Old River and Rock Slough intakes. The project will help maintain the benefits of the Los Vaqueros Reservoir by enabling CCWD to extend the time periods during which Delta water of high quality is available for 1) filling Los Vaqueros Reservoir and 2) direct use without the need for blending with higher-quality water from Los Vaqueros Reservoir. The alternative intake would divert up to 250 cfs from a new intake on Victoria Canal; however, the project would not increase CCWD's total Delta diversion capacity and would not change demands or the quantity of water delivered to its service area each year.

The project includes a new, screened water intake and pump station located along the lower third of Victoria Canal, on Victoria Island in the central Delta, and a buried pipeline that would extend 12,000 to 14,000 feet from the new intake directly across Victoria Island and beneath Old River and tie into CCWD's existing Old River conveyance system on Byron Tract. The project also involves adding a new point of diversion to certain existing water rights held by CCWD and Reclamation. The EIR/EIS for this project was completed in 2006. This project is currently under construction and is expected to be operational in 2010.

4.1.1.3 Contra Costa Canal Replacement Project

The project involves replacing the unlined portion of the Contra Costa Canal, approximately 3.97 miles in length, with a buried pipeline within Reclamation's existing right-of-way. The project site is located in the south Delta in eastern Contra Costa County, in the city of Oakley or its sphere of influence. The purpose of this project is to eliminate shallow groundwater seepage from entering the canal, eliminate engineered canal embankments, and improve safety and security in a growing urban area.

An Initial Study/Mitigated Negative Declaration was adopted by the CCWD Board of Directors in November 2006, and Reclamation completed an EA and Finding of No Significant Impact for this project in July 2007. CCWD is planning to construct the first 2,000 feet of the Canal Replacement Project from Pumping Plant No. 1 to Marsh Creek in 2009. Ultimately, CCWD will replace the entire 21,000 feet of the unlined canal.

4.1.1.4 Contra Costa Water District and U.S. Bureau of Reclamation – Los Vaqueros Reservoir Expansion Project

Expansion of the Los Vaqueros Reservoir from 100,000 acre-feet to as large as 275,000 acre-feet is being evaluated for the ability to protect and restore Delta fisheries and improve Bay Area water quality and reliability. The Draft EIS/EIR was issued in February 2009, and a Final EIS/EIR is expected to be issued in 2010.

With an expanded reservoir, the Bay Area would have a more reliable supply of higher quality water when faced with water shortages caused by drought, emergencies in the Delta, or regulatory restrictions on Delta pumping. An expanded reservoir could also provide water supplies for environmental water management in the Delta to support fish protection, habitat management and other environmental water needs. In 2007, key decision-makers became increasingly convinced of the need to expand the reservoir as one of many actions needed to protect the Delta and the Bay Area's water supplies.

The environmental effects of the expansion project have been evaluated in an EIS/EIR. The expansion project is being designed to create environmental and water supply reliability benefits without creating any associated impacts on the Delta ecosystem or water quality. General effects of the reservoir expansion may include a net shift in timing of Delta export pumping to periods of less fishery sensitivity, and from drier years to wetter years. These effects would help reduce or mitigate for other cumulative impacts on the Delta ecosystem and water quality. Project construction is expected to commence as early as 2012.

4.1.1.5 Contra Costa Water District and U.S. Bureau of Reclamation – Rock Slough Fish Screen

This project would construct a fish screening structure at the entrance of the Contra Costa Canal along the north bank of Rock Slough. CCWD plans to use the Old River Pump Station and the Alternative Intake Pump Station to support water deliveries during construction of the fish screen. CCWD will pump around the construction area depending on hydrological conditions, water quality and Los Vaqueros Reservoir storage levels.

The project is part of the Contra Costa Canal Pumping Plant Mitigation Program and complies with Section 3406(b) (5) of the Central Valley Project Improvement Act (CVPIA) and the USFWS 1993 BO for delta smelt. The program also is referenced in the USFWS CVP/SWP

Operation Biological Opinion (USFWS 2008b). The major objectives are to minimize the entrainment of fish, reduce potential predation, and minimize take of endangered species and debris loading (Reclamation 2009, CCWD 2009). This project is currently being constructed.

4.1.1.6 U.S. Bureau of Reclamation – Central Valley Project Improvement Act

The CVPIA is a federal statue intended to:

- Protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins of California;
- Address impacts of the CVP on fish, wildlife and associated habitats;
- Improve the operational flexibility of the CVP;
- Increase water-related benefits provided by the CVP to the state of California through expanded use of voluntary water transfers and improved water conservation;
- Contribute to the state of California's interim and long-term efforts to protect the San Francisco Bay/Sacramento–San Joaquin Delta Estuary; and
- Achieve a reasonable balance among competing demands for use of CVP water, including the requirements of fish and wildlife, agricultural, municipal and industrial and power contractors.

4.1.1.7 Sacramento County Water Agency and East Bay Municipal Utilities District – Freeport Regional Water Project

The Freeport Regional Water Project is a cooperative effort of Sacramento County Water Agency (SCWA) and East Bay Municipal Utilities District (EBMUD) to supply surface water from the Sacramento River to customers in central Sacramento County and in Alameda and Contra Costa counties. The project will provide SCWA with up to 85 million gallons of water per day (mgd) which will in turn be supplied to customers in central Sacramento County to supplement groundwater use in the central part of the county. Sacramento will begin receiving water from this project in 2011 after construction of the Vineyard Surface Water Treatment Plant is completed. EBMUD will use up to 100 mgd of water during dry years only, estimated to be three out of every 10 years, as a supplemental water source to complement existing conservation programs. EBMUD will be able to receive water from the Project by the end of 2009. An EIR/EIS was completed for this project in July 2005. Significant, unavoidable impacts of the project were determined to be short-term increases in construction noise in the project area during the day, an exposure of noise-sensitive land uses to general construction noise at night, and an increase in ambient noise levels in the project area due to facility operations. Construction for this project is currently underway and is expected to be completed in November 2009. The project is expected to be operational in December 2009.

4.1.1.8 Semitropic Water Storage District – Delta Wetlands Project Place of Use

The Delta Wetlands Project would provide water to Semitropic to augment its water supply by banking water in the Semitropic Groundwater Storage Bank and Antelope Valley Water Bank. The project would divert water in the Delta, store water on two Delta islands, create habitat, supplement water storage in groundwater banks, and provide water to users south of the Delta.

The project was originally proposed in 1987 and after several project changes; a Final EIR was published in 2001. The courts required Semitropic to identify water users. In 2007, Semitropic and the Delta Wetlands Project agreed to transfer water to Semitropic for irrigation, storage, and use by the San Bernardino Valley Municipal Water District, the Western Municipal Water District of Riverside County and member agencies of the Metropolitan Water District of Southern California.

The project will divert Delta inflow during times of surplus for storage on reservoir islands until released for rediversion and conveyance using SWP and CVP facilities to south-of-Delta users within Semitropic's service area.

4.1.1.9 U.S. Bureau of Reclamation and San Luis Delta Mendota Water Authority – Delta-Mendota Canal/California Aqueduct Intertie

The Delta-Mendota Canal/California Aqueduct Intertie is a proposed action in the August 2000 CALFED Bay-Delta Program Programmatic Record of Decision. The Intertie would be located in an unincorporated area of the San Joaquin Valley in Alameda County, west of the city of Tracy. The site is in a rural agricultural area owned by the state and federal governments. It would connect the Delta-Mendota Canal (Mile 7.2) and the California Aqueduct (Mile 9) via a new pipeline and pumping plant. The project purpose is to improve the DMC conveyance conditions that restrict the CVP Jones Pumping Plant to less than its authorized pumping capacity of 4,600 cfs and to improve operational flexibility for operations, maintenance, and emergency activities at the Jones and Banks pumping plants, Tracy and Skinner fish facilities, the Delta-Mendota Canal, the California Aqueduct, and the O'Neill pumping plant and intake canal. The project also includes an interconnection and construction and operation of a new transmission line and a new point of delivery on Western Area Power Administration's system for delivery of power for the Intertie. The Draft EIS was published in July 2009 and the final EIS is anticipated to be completed in late 2009.

4.1.1.10 U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Water Resources, and California Department of Fish and Game – Environmental Water Account

In August 2000, the CALFED Bay-Delta Program's Programmatic EIS/EIR Record of Decision identified the Environmental Water Account (EWA) as one element of its overall strategy for meeting the goals of the CALFED Program. This program is intended to establish a water acquisition program that allows Reclamation to purchase water supplies to provide additional environmental benefits to the Sacramento-San Joaquin river system and Delta, thereby providing better reliability for water users south of the Delta. The EIR/EIS, released in April 2008, identified the available sources of additional water that might be purchased or acquired by Reclamation for release into the Delta or for use by SWP or CVP contractors; thus, replacing water that would have been exported from the Delta, providing increased flow into the Delta, or reducing exports from the Delta providing protection to aquatic resources. The program also identifies strategies for shifting the timing of flow releases or Delta pumping to allow water to be stored for later use south of the Delta. The Draft Supplemental EIS/EIR was published on October 22, 2007. The Final Supplemental EIS/EIR, published on April 22, 2008.

4.1.1.11 U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Water Resources, and California Department of Fish and Game – San Joaquin River Restoration Program

The San Joaquin River Restoration Program (SJRRP) was established to implement a Stipulation Settlement (Settlement) between the plaintiffs (Natural Resources Defense Council et al.) and the Department of the Interior regarding the restoration of the San Joaquin River and its native Chinook salmon runs. The Settlement established both a stream restoration goal and a water management goal. The purpose of implementing the Settlement with the SJRRP is to restore flows to the San Joaquin River from Friant Dam to the confluence of the Merced River and restore a self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water supply impacts from restoration flows. The SJRRP area includes the San Joaquin River from Friant Dam to the Delta, the Friant Division of the CVP, other water service areas potentially affected by changes in water deliveries or restoration of the San Joaquin River, and tributaries to the San Joaquin River downstream of the river restoration area. The river restoration area is 153 miles long and reaches from Friant Dam to the confluence of the Merced River. A Draft EA/Initial Study (IS) was published for the Interim Flows in June 2009. The Final EA/IS was released in late September 2009. The document outlined Interim Flow releases in the San Joaquin River from October 1, 2009 through December 31, 2013. The Draft Programmatic EIS/EIR for Restoration Flows is scheduled for completion in early 2010. Site-specific analyses and designs for specific river segments and other locations will be prepared in subsequent years. Final Restoration Flows will be established in the San Joaquin River no later than January 1, 2014. In addition, Chinook salmon are scheduled to be reintroduced into the river in 2012.

4.1.1.12 California Department of Water Resources and Yuba County Water Authority – Proposed Lower Yuba River Accord

The Lower Yuba River Accord (Yuba Accord) consists of three separate, but interrelated, agreements. The purpose of these agreements is to protect and enhance fisheries resources in the lower Yuba River (Fisheries Agreement), increase local water supply reliability (Conjunctive Use Agreements), and provide Reclamation and DWR with increased operational flexibility for protection of the Delta fisheries resources and provision of supplemental dry-year water supplies to state and federal water contractors (Water Purchase Agreement). The Fisheries Agreement establishes higher minimum instream flows during most months of most water years than are required of the SWRCB's D-1644. The Conjunctive Use Agreements establishes a comprehensive and conjunctive use program that integrates surface water and groundwater supplies of the local irrigation districts and mutual water companies that the Yuba County Water Authority (YWCA) serves in Yuba County. The Water Purchase Agreement between DWR and YCWA (Currently, Reclamation is not a signatory party to this agreement), allows DWR to purchase water from YCWA for fishery protection use. Additionally, water purchases are available to DWR for the SWP and CVP (via the SLDMWA) in drier years.

The Yuba Accord study areas include the Yuba Project facilities in the lower Yuba River, the YCWA Member Units and their service area, local groundwater basins, CVP and SWP storage reservoirs and rivers downstream of these reservoirs, and the Delta. A Notice of Intent was published June 20, 2005 and a Draft EIS/EIR was published on June 25, 2007. The Final EIS/EIR was completed on December 6, 2007. However, a Record of Decision has not been completed.

4.1.1.13 Emergency Levee Repairs

On February 24, 2006, following sustained heavy rainfall and runoff, Governor Arnold Schwarzenegger declared a State of Emergency for California's levee system, commissioning up to $500 million of state funds to repair and evaluate State/federal project levees. Following the emergency declaration, Governor Schwarzenegger directed the DWR to secure the necessary means to fast-track repairs of critical erosion sites. To date, nearly 250 levee repair sites have been identified, with more than 100 of the most critical sites having already been completed. Repairs to others are either in progress or scheduled to be completed in the near future, and still more repair sites are in the process of being identified, planned, and prioritized.

In general, repairs to State/federal project levees are being conducted under three main programs: the Critical Erosion Repairs Program, the Sacramento River Bank Protection Project, and the Public Law (PL) 84-99 Rehabilitation Program. A fourth program to repair critically damaged levees on the San Joaquin Flood Control System is under development by DWR.

DWR is the lead agency for the Critical Erosion Repairs Program, while the Corps is the lead agency for the Sacramento River Bank Protection Project and the PL 84-99 Rehabilitation Program. ("PL 84-99" refers to federal Public Law 84-99, the Flood and Coastal Storm Emergencies Act).

DWR is also working with local agencies to survey and document erosion damage at additional sites that are under local control (not part of the State/federal flood control system), with the aim of assisting local jurisdictions in determining the best approach for needed repairs. Local maintaining agencies can participate in the Local Levee Grant Program with State/local cost-sharing divided evenly, provided the repair sites are deemed critical by DWR.

4.1.1.14 State Delta Levee Subvention Program

The DWR Flood Control Subventions Program and the Central Valley Flood Protection Board (formerly Reclamation Board) provide financial assistance to local reclamation districts cooperating in the construction of federally authorized flood control projects. The Central Valley Flood Protection Board administers the State financial assistance for major Corps projects in the Central Valley, while the Flood Control Subventions Section is responsible for disbursing funds for all other State authorized projects. Levee repair projects have been completed on a number Delta islands including Sherman, McDonald and Tyler Islands.

4.1.1.15 Delta Levees Special Flood Control Program

The Delta Levees Special Flood Control Projects provides financial assistance to local agencies to maintain and rehabilitate levees in the Delta. The program was established by the California Legislature under SB 34, SB 1065, and AB 360, to preserve the Delta. This program is authorized in the California Water Code, Sections 12300 thru 12314, and has provided more than $100 million for flood control and related habitat projects. The intent of Legislature, as stated in the Water Code, is to preserve the Delta much as it exists at the present time. The program is currently focused on flood control and related habitat restoration projects primarily on eight western Delta Islands including Bethel, Bradford, Holland, Hotchkiss, Jersey, Sherman, Twitchell and Webb Islands, as well as the towns of Thornton and Walnut Grove. Projects

currently proposed for funding include a 1.5-mile stretch of levee along Sand Mound Slough, Roosevelt Cut, and Franks Tract and improvements on a 5 mile stretch of exterior levee along Middle River.

4.1.1.16 Sacramento River Deep Water Ship Channel Project

The Sacramento River Deep Water Ship Channel Project is a congressionally authorized project being implemented by the Corps and the Port of Sacramento. Currently, the Corps and the Port of Sacramento are conducting a Limited Reevaluation Study to recommend navigation improvements for federal funding and preparing a joint Supplemental EIS and Subsequent EIR to evaluate resumption of navigational improvements to the Sacramento River Deep Water Ship Channel (SRDWSC).

This project would deepen the existing federal navigation channel from -30 feet to -35 feet (mean low water) and widen portions of the channel to improve navigational efficiency and safety. The SRDWSC is a 46.5 mile long shipping channel that runs from the Contra Costa county line to the Port of Sacramento. The SRDWSC joins the existing 35 feet deep channel at New York Slough, thereby affording the Port of Sacramento access to San Francisco Bay Area harbors and the Pacific Ocean. The Corps and Port of Sacramento are planning to conduct annual maintenance dredging with upland placement of the material. The project would include water quality control and fish monitoring and establishment of wetland/riparian habitat on Prospect Island and lower Sherman Island.

The Supplemental EIS/Subsequent EIR will reexamine water and air quality issues, fish and wildlife impacts, and impacts on threatened or endangered species. The impact of deepening on salinity intrusion and its effect on water quality in the Delta will be reexamined. Effects on water and air quality and fish and wildlife from dredging and disposal of dredged material at upland disposal sites will be reexamined, as will the economic benefits.

4.1.1.17 Other Potential Projects

Reclamation has considered constructing a barrier-gate near the head of Georgiana Slough to block highly turbid waters from entering the central Delta. If pursued and implemented, this could be tested as a complementary action to the Proposed Action at a future date.

While not currently a part of the Proposed Action, and not evaluated in this EA, the Old River gate could be operated in conjunction with potentially modified Delta Cross Channel gate operations or upstream reservoir releases to provide additional flow to the San Joaquin River, and help push conditions favorable to smelt in a seaward direction.

Other construction projects in Contra Costa County are listed in Table 4-1. No related projects were identified for San Joaquin County.

Table 4-1 Other Projects—Approved, Proposed, or under Construction

Project Name	Status	Acreage	Proposed/Existing Use		
			Residential Units	Industrial square-feet	Commercial square-feet
Cypress Grove	Under construction	147	637	—	—

Table 4-1 Other Projects—Approved, Proposed, or under Construction

Project Name	Status	Acreage	Proposed/Existing Use		
			Residential Units	Industrial square-feet	Commercial square-feet
Dutch Slough Properties	Proposed	320	Approximately 1,275	—	Approximately 100,000
East Cypress Corridor Specific Plan	Proposed	2,546	5,759	166,356 (5.7 acres)	638,600
Summer Lake (formerly Cypress Lake and Country Club)	Under construction (although changes have been proposed for the northern, as-yet-undeveloped portion of the project site)	678 [a]	1,330 [b] (with an additional 119 units proposed)	166,356 (5.7 acres)	10,000 [d]
Tuscany Estates (formerly Baldocchi property)	Approved	24	100	—	—
Dutch Slough Community Park(formerly Emerson Dairy)	Planning	55	—	—	—
Lindquist Landing project on Holland Tract Road	Planning	19	Add 50,000 sq feet boat storage	—	—
Dutch Slough Wetland Restoration Project (DWR)	Planning	1,166	1,166	—	—
Holland Tract Wetlands Project Wildlands Inc.	Construction expected to start in 2009	263	263	109	
Ironhouse Sanitary District Waste Water Expansion Project, 8 Million Gallon per day Tertiary Treatment Plant	Construction scheduled to begin in 2009 and online in 2011	—	—	—	—

[a] This acreage is included in the acreage shown for the East Cypress Corridor Specific Plan.
[b] These units are included in the total number of units shown for the East Cypress Corridor Specific Plan.
[c] This industrial development is included in the development shown for the East Cypress Corridor Specific Plan.
[d] This commercial square footage is included in the development shown for the East Cypress Corridor Specific Plan.

4.1.2 Cumulative Impacts by Resource

4.1.2.1 Aesthetics

The impacts of the Proposed Action would be highly localized and affect only a small portion of the Delta. No other projects would affect views in the immediate vicinity of the Old River and Connection Slough sites, and no cumulative impacts would occur.

4.1.2.2 Agricultural Resources

The Proposed Action would not result in the permanent loss of agricultural resources; therefore, no cumulative impacts would occur.

4.1.2.3 Air Quality

The Proposed Action would result in an incremental contribution to a cumulative effect for several criteria pollutants for which the San Francisco Bay Area and San Joaquin Valley Air Basins are in non-attainment under an applicable federal or state ambient air quality standard during both facilities construction and removal. However, that impact would not be cumulatively

significant. As shown in Table 3.3-8, the significance criteria in the BAAQMD (1999) guidelines are 80 pounds per day oxides of nitrogen, hydrocarbons, or particulate matter as PM_{10} or 15 tons per year oxides of nitrogen, hydrocarbons, or PM_{10}. Similarly, as shown in Table 3.3-9, the significance criteria in the SJVAPCD (2002) Assessment Guidelines are 10 tons per year oxides of nitrogen or hydrocarbons with no daily significance thresholds defined. As shown in Table 3.3-12, total NO_X construction emissions for the Proposed Action are estimated to be approximately 13.69 tons, total ROC emissions about 1.51 ton, and total PM_{10} emissions about 0.95 tons. All of these quantities are below the long-term annual significance thresholds of both Districts; only NO_X and PM_{10} exceed the short-term daily significance thresholds of the BAAQMD. Emissions from facilities removal after the five-year demonstration period would be considerably less because they would take place over a 4-week period rather than a 21-week period, and less equipment and materials handling would be required (e.g., no dredging would be needed, and some of the rock would be left in the channel bottom, thus requiring less movement of materials).

The San Francisco Bay Area and San Joaquin Valley Air Basins are in non-attainment of state and federal ozone, PM_{10}, and $PM_{2.5}$ standards for several different averaging times. As detailed in Section 3.3, the onsite operation of heavy equipment during construction would generate combustion emissions and fugitive dust emissions, resulting in a short-term incremental impact. Also detailed in Section 3.3, offsite vehicle emissions (trucks and worker vehicles) would also contribute to a short-term incremental impact in the region.

These incremental impacts were previously determined not to be significant because the Proposed Action would implement the applicable fugitive dust and particulate matter emissions control measures contained in the BAAQMD (1999) guidelines and listed in Section 3.3. The use of newer, less polluting Tier 1, 2, and 3 engines in the majority of construction equipment used onsite is a measure for reducing combustion emissions of NO_X, ROC, CO, PM_{10}, and $PM_{2.5}$. Although not a mitigation measure per se, California ultra-low sulfur diesel fuel with a maximum sulfur content of 15 ppm by weight would be used in all diesel-powered equipment which minimizes sulfur dioxide and particulate emissions. The results of the screening analysis for criteria pollutants presented in Section 3.3 show that no exceedence of ambient air quality standards in the project vicinity would result solely from activities of the Proposed Action. Thus, short-term emissions of NO_X and PM_{10} would not be cumulatively significant because the Proposed Action would comply with specific requirements in the Districts' approved air quality plans for attainment of ozone and particulate matter. In short, these regional plans address the existing and cumulative impact issues.

4.1.2.4 Aquatic Biological Resources

The Proposed Action is a demonstration project and as such is designed with considerable operational flexibility. Because of this flexibility and the planned coordination with SWP and CVP pumping and other planned or future projects within the south Delta, adverse cumulative impacts of the Proposed Action in combination with other projects would be minor. Beneficial effects to some aquatic species could occur through the reduction in entrainment.

Bay Delta Conservation Plan (BDCP)

The BDCP is in the planning and concept development phase. The planning phase is not expected to become final before the end of 2010 with implementation to follow. Given the

complexity of this plan and the need for public review and acceptance, it is unlikely that it will be completed and implemented prior to the five-year horizon established for the Proposed Action. However, since the Proposed Action and the BDCP have similar objectives (i.e., providing for the conservation of ESA-listed species and their habitats), and since the Proposed Action is identified in the BDCP as an action taking place in the Delta, it is expected that the two projects would be complementary and that cumulative impacts would be beneficial.

CCWD – Water Quality Improvement Projects

The Proposed Action may result in cumulative hydrologic changes in south Delta channel flows and related changes in water quality in conjunction with CCWD's water quality improvement projects. Incremental impacts of the Proposed Action combined with CCWD's projects to overall Delta channel flows are anticipated to be minimal due to the operational flexibility of both projects. Cumulative changes in channel flows may affect salinity in the south Delta, although these impacts are considered minor because the Proposed Action would implement monitoring to ensure that adverse impacts do not occur.

Los Vaqueros Reservoir Expansion Project

Both the Los Vaqueros Project and the Proposed Action intend to benefit the Delta ecosystem. General effects of the reservoir expansion may include a net shift in timing of Delta export pumping to periods of less fishery sensitivity, and from drier years to wetter years. The Proposed Action is intended to reduce the entrainment of delta smelt in south Delta pumps. The projects have complementary objectives, and overall cumulative impacts would be beneficial.

CVPIA Required Program

The CVPIA includes a requirement for Reclamation to develop and implement a program to mitigate fishery impacts resulting from the operation of Pumping Plant No. 1. The program may include a fish screen at Rock Slough (just south of the Old River site) modified operations, or other measures to mitigate fishery impacts. The Proposed Action would be operated in a flexible manner that would allow coordinated operations in conjunction with the CVPIA program requirements. Both projects are intended to result in beneficial impacts to aquatic species, and cumulative impacts are expected to be beneficial.

Freeport Regional Water Project

The Freeport Regional Water Project is a water supply project for customers in central Sacramento County and in Alameda and Contra Costa counties in the EBMUD service area. This project includes a water intake/pumping plant located on the Sacramento River near Freeport, and a 17-mile pipeline to convey water from the river through Sacramento County to the Folsom South Canal. Construction is nearly completed. This project would not affect aquatic resources in the Delta; therefore, no cumulative impacts would occur.

4.1.2.5 Terrestrial Biological Resources

The Proposed Action is not likely to result in cumulative impacts to terrestrial special-status species or wetlands. The effects of the Proposed Action are individually and cumulatively limited in scope, scale and duration, and the proposed environmental commitments would fully offset the effects of the Proposed Action on terrestrial species and wetlands.

4.1.2.6 Cultural Resources

The Proposed Action would not affect known archaeological resources or human remains, but there is a potential for undiscovered resources to be disturbed by construction. Other projects in the study area also could affect cultural resources (i.e., prehistoric sites, historic sites, historic buildings, and isolated artifacts and features) and human remains, and cumulative impacts could be significant. Environmental commitments identified in Section 2 (CR-1 through CR-2) would ensure that the Proposed Action's contribution to this cumulative impact would be minor.

4.1.2.7 Geology and Soils

Impacts to geology and soils are highly localized; no other projects are located in the immediate vicinity, and no cumulative impacts would occur.

4.1.2.8 Hazards and Hazardous Materials

The Proposed Action would result in a minor, localized potential for impacts associated with hazards or hazardous materials and would not contribute to a cumulative impact in combination with other reasonably foreseeable projects.

4.1.2.9 Hydrology and Water Quality

The Proposed Action would result in some beneficial impacts on water quality and would not violate any water quality standards. Any cumulative impacts would be minor as a result of the short-term operations of the Proposed Action. The Proposed Action also includes monitoring procedures to verify that the operable gates would not impair water quality. The Proposed Action provides the ability to make real-time adjustments to operations based on changing conditions in the Delta, including changes associated with SWP and CVP operations. The Proposed Action would not affect groundwater supplies or affect groundwater recharge; therefore, no cumulative impacts would occur. Any erosion and siltation or runoff caused by the Proposed Action would be localized and would not contribute to a cumulative impact. The Proposed Action is designed in a manner that would not increase the risk of flooding; therefore, no cumulative impacts associated with flooding would occur.

4.1.2.10 Noise

Noise impacts are highly localized. No other projects would be located in the same general location as the Proposed Action, and no cumulative impacts would occur. Use of the Roberts Island #1 disposal site would not appreciably add to the noise at that location.

4.1.2.11 Public Services

The Proposed Action would potentially result in a minor increase in the demand for police and fire protection services. Principally during the peak recreational use period that would occur each year, but this minor, short-term potential increase would not require increased public services or new facilities, and would not result in a significant cumulative impact in combination with the impacts of other projects in the area.

4.1.2.12 Recreation

No other projects described above are expected to affect recreation in the project area; therefore, no cumulative impacts would occur. As discussed in Section 3.12., several temporary barriers are periodically installed in the south Delta as part of the South Delta Temporary Barriers Project. They are usually installed between September 15 and November 30, but also have been in place

between April 15 and May 30 during some years. The project consists of four rock barriers across South Delta channels – Old River near Tracy, Middle River, Grant Line Canal, and HOR. The HOR barrier serves as a fish barrier. In 2008, a court order designed to protect delta smelt prohibited the installation of the spring HOR barrier pending fishery agency actions or further order of the court. The remaining three barriers serve as agricultural barriers and are installed between April 15 and September 30 of each season. A boat portage system is provided when these barriers are in place. Both the Proposed Action and the Temporary Barriers Project provide portage systems to allow boats of a certain size to move around the barriers when they are in place, and both projects include provisions to notify the public of closure periods, allowing boaters to schedule trips accordingly. Moreover, alternative routes are available should boaters wish to bypass the gates when they are closed. There would be no cumulatively significant impacts.

4.1.2.13 Socioeconomics

The Proposed Action generally would result in limited beneficial socioeconomic impacts; there may be limited adverse impacts to nearby marina owners during construction and operations, but no other projects are expected to affect these marinas, and no cumulative impacts would occur.

4.1.2.14 Transportation

No other projects are expected to affect ground or vessel transportation in the project area; therefore, no cumulative impacts would occur.

4.1.2.15 Climate Change

Other projects described in Section 4.1.1 would generate GHG emissions, primarily during construction. The Proposed Action's contribution to GHG emissions would be temporary and negligible in comparison to those emissions that already exist, and measures would be implemented to reduce emissions to the extent practicable. The Proposed Action, in combination with other projects, would not conflict with agency plans, policies or regulations aimed at reducing GHG emissions nor impede the state's ability to meet its 2020 GHG emission reduction goal.

4.1.3 Growth Inducement

As discussed in Section 3.13, Socioeconomics, the Proposed Action would require approximately 30 workers to construct the proposed facilities over a 21-week period; it is likely that fewer workers would be required to remove the facilities during the four-week removal period and during restoration. Given the small number of workers involved and the brief construction schedule, these workers would readily be available from the local population, and no influx of workers would be required. The only new permanent workers would be the gate operators, who would be required only from December through March and June, and as otherwise necessary. These workers could be drawn from the local population. No residences would be constructed as part of the Proposed Action, nor would infrastructure be extended into an area where it did not already exist. Electric power used to operate the gates and lights would be drawn from power lines that are already present near the sites. The Proposed Action would not result in growth inducement due to its limited personnel requirements and because it would not extend new infrastructure or otherwise attract new residents.

4.1.4 Irreversible and Irretrievable Commitments of Resources

The Proposed Action would result in the irreversible and irretrievable commitment of fossil fuels and power consumption during construction, operations, and removal activities. It would require the commitment of construction materials (e.g., rock, sheet pile, king piles, and barges) for the duration of the five-year demonstration period. At the end of five years, most materials would be removed and could be reused elsewhere. A layer of rock bedding and sheet piling would remain in the stream channels, as well as sheet piling required to maintain the integrity of the levees.

Chapter 5 Consultation and Coordination

This section describes the agencies and parties that were consulted during the environmental review process, the Proposed Action's compliance with relevant regulations, and the public involvement process. It will include responses to comments received on the Draft EA.

5.1 Consultation and Coordination

This EA was prepared in consultation with a number of entities, including USFWS, NMFS, USCG, Corps, DFG, State Lands Commission, Cal Boating, SJVAPCD, BAAQMD, Metropolitan Water District of Southern California, and Reclamation Districts 2025, 2027, and 2028.

5.2 Federal, State, and Local Requirements

5.2.1 Federal Requirements

5.2.1.1 National Environmental Policy Act of 1969

The NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment. Regulations implementing NEPA are set forth by the Council on Environmental Quality. Reclamation has followed NEPA and the Council on Environmental Quality regulations in the development of this EA.

5.2.1.2 Fish and Wildlife Coordination Act (16 U.S.C. 651 et seq.)

The Fish and Wildlife Coordination Act requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. Reclamation contacted USFWS regarding the need for a Coordination Act Report, and USFWS, NMFS, and DFG all provided input on the Proposed Action. USFWS is preparing a Coordination Act Report for this project.

5.2.1.3 Endangered Species Act (16 U.S.C. 1521 et seq.)

Section 7 of the ESA requires federal agencies to ensure that all federally associated activities within the United States do not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of the critical habitat of these species. A BA has been prepared for the Proposed Action and will be transmitted to the USFWS and NMFS with a request to initiate formal consultation.

5.2.1.4 Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.)

The Magnuson-Stevens Act requires federal agencies to consult with NMFS on activities that may adversely affect EFH (Section 305(b) (2)). The BA for the Proposed Action addresses impacts on EFH and will serve as the basis for completing the required consultation.

5.2.1.5 Migratory Bird Treaty Act (16 U.S.C. 703 et seq.)

The MBTA implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds (a full description is included in Section 3.5.2). The Proposed Action includes environmental commitments to ensure compliance with the MBTA.

5.2.1.6 National Historic Preservation Act (15 U.S.C. 470 et seq.)

Section 106 of the NHPA (16 U.S.C. 470f) requires federal agencies to take into account the effect of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. Implementing regulations at 36 CFR Part 800 detail the process for Section 106 compliance. Reclamation will determine whether the Proposed Action would adversely affect historic properties and will consult with the State Historic Preservation Office (SHPO) and seek their concurrence on its finding. At such time Reclamation receives concurrence from the SHPO on its finding, it will have completed the Section 106 process. Reclamation will complete the Section 106 process as outlined in the regulations at 36 CFR Part 800 prior to implementation of the Proposed Action.

5.2.1.7 Section 404 of the Clean Water Act

Section 404 of the CWA requires project proponents to obtain a permit from the Corps for activities that involve placement of dredged or fill material into waters of the U.S. The CWA requires the Corps, when issuing the permit, to follow the requirements of the EPA's guidelines for implementing Section 404(b) (1) of the CWA. EPA's guidelines prohibit discharges of dredged or fill material into waters of the U.S., if a practicable alternative to the proposed project exists that would have less adverse impacts on the aquatic ecosystem, so long as that alternative does not have other significant adverse environmental impacts. A Section 404 permit would be obtained from the Corps prior to the onset of construction.

5.2.1.8 Section 401 of the Clean Water Act

Pursuant to the CWA Section 401, any applicant for a federal license or permit for activities that may result in any discharge into waters of the U.S. shall provide the permitting agency (Corps) with a certification from the respective state. The CVRWQCB has permitting authority for the State of California. A Section 401 certification will be obtained prior to the onset of construction.

5.2.1.9 Section 402 of the Clean Water Act

The NPDES requires permits for pollution discharges into water bodies such that the permitted discharge does not cause a violation of federal and state water quality standards. NPDES permits define quantitative and/or qualitative pollution limitations for the permitted source, and control measures that must be implemented to achieve the pollution limitations. Pollution control measures are often referred to as BMPs. An NPDES permit is required for construction activity on sites greater than 1 acre in size, such as the Proposed Action.

5.2.1.10 Section 10 of the Rivers and Harbors Act of 1899

Section 10 of the RHA requires authorization from the Secretary of the Army, acting through the Corps, for the construction of any structure in or over any navigable water of the U.S. Structures or work outside the limits defined for navigable waters of the U.S. require Section 10 permits if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, channelization, or any other

modification of a navigable water of the U.S., and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. A Section 10 permit would be obtained from the Corps prior to the onset of construction.

5.2.1.11 Executive Order 11990, Protection of Wetlands

This EO directs Federal agencies to avoid undertaking or assisting in new construction located in wetlands, unless no practical alternative is available. The proposed project will result in impacts to jurisdictional wetlands. Given the purpose of the Proposed Action and related location of the export facilities no practical alternative exists to avoid impacts to wetlands.

5.2.1.12 Executive Order 11988, Floodplain Management

EO 11988 requires Reclamation to regulate development in floodplains and preserve the floodplains' natural and beneficial values. The Proposed Action has been designed to avoid affecting the function of floodplains.

5.2.1.13 Clean Air Act

The Proposed Action involves ground-disturbing activities that would result in fugitive dust and diesel emissions. Impacts of the Proposed Action were evaluated according to the requirements of the BAAQMD and SJVAPCD, the local air districts, and were found to comply; additionally, measures have been incorporated that would reduce impacts to the extent feasible. A permit would be required from the SVAPCD for dredging and pile driving during construction.

5.2.1.14 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act is intended to preserve selected rivers or portions of rivers in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes. Neither the San Joaquin River, Old River, nor Connection Slough is considered a wild and scenic river, nor are any of the other rivers located in the vicinity of the Proposed Action.

5.3 Public Involvement

This EA is being issued for a 30-day public review period. Three public informational meeting on the proposed action will be held.

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