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CHAPTER 1. Introduction

BACKGROUND

Reclamation Water Contracting Program

The U. S. Bureau of Reclamation (Reclamation) is proposing to resume long-term contracting of approximately 1.5 million acre-feet per year (af/yr) of available and uncommitted water from the Central Valley Project (CVP) to meet agricultural, municipal and industrial (M&I), and refuge water needs. The water proposed for contracting originates from existing storage facilities in the northern CVP (Shasta, Trinity River, and American River Divisions). Water supplies from other CVP facilities, such as the Friant Division and New Melones Reservoir, are not included in Reclamation's proposed water contracting program and therefore are not covered in this Environmental Impact Statement (EIS). The 1.5 million af/yr of water would be sufficient to meet only a portion of the 3.4 million af/yr of needs estimated (based on requests) to exist for CVP water.

Entering into new long-term CVP water contracts is a major federal action that may have significant consequence for the environment. The National Environmental Policy Act (NEPA) requires that an EIS be prepared for such actions. Reclamation has prepared three comprehensive EIS's to assess its proposed actions and reasonable alternatives. The three EIS's focus on water allocations to: 1) the Sacramento River Service Area (SRSA), 2) the American River Service Area (ARSA), and 3) the Delta Export Service Area (DESA).

The purpose of the water contracting EIS's is to evaluate the regional and cumulative impacts of alternative allocations of available CVP yield. Subsequent site-specific NEPA environmental reviews, of much narrower scope, will be conducted prior to execution of contracts with individual agencies. General site-specific analyses are included in the water contracting EIS's to assist in program decision making.

To prepare these EIS's, Reclamation has held scoping and other public meetings to collect public comments and has solicited written input from interest groups, public and private agencies, and citizens. Reclamation has also prepared and distributed scoping reports on these projects that inform the public of the concerns expressed by these interests during the scoping process.

History of the CVP

Demands for a federal reclamation program in the West arose during the late nineteenth century as thousands of people began arriving from the eastern United States to mine for gold and settle the fertile valleys, vast plains, and arid portions of California and surrounding states. Adding impetus to this migration were favorable public land laws initiated by the federal government, which granted individuals title to up to 160 acres of public land if certain improvements on the land were made within specified periods of time. The immediate impact of these laws was to encourage rapid settlement of the lands recently acquired by cession, treaty, and purchase from other countries.

People who did not strike it rich during the Gold Rush in California turned to farming to feed those who did. Silver, oil, and real estate booms followed, drawing more people into the state. Many settled in the coastal cities, while agriculture in the inland valleys boomed. Relying on their industry, intuition, and some understanding of Spanish and Indian irrigation practices, Central Valley settlers built simple diversion dams and dug canals to transport water to fields of grain and vegetables. By 1878, an intricate pattern of water courses had been built through the flatlands, with over a thousand miles of irrigation canals in operation in Fresno County alone.

Although California is blessed with rich, fertile soil, the state's topographic and climatic extremes create an uneven distribution of water. Precipitation ranges from 174 inches per year in the northwest to little more than a trace in the parched southeastern deserts. The majority of the state's available water originates north of Sacramento and major deficiencies occur south of there. Adding to the distribution problem is a seasonal problem: nearly all of the precipitation occurs from November to March. Runoff during this period often resulted in flooding which caused extensive damage to agricultural fields and communities located along the major tributaries of the Sacramento, American, and San Joaquin Rivers. The rivers crossing the flat valley floor could not be contained within their banks as great volumes of water surged out of the mountains during winter storms.

To protect against flooding, farmers built levees. By 1910, there were about 300,000 acres of land in the Central Valley in a relatively complete state of reclamation; by 1918, this area had risen to 700,000 acres. The increase was mainly attributable to 350 miles of levees that were scattered throughout the valley. Nevertheless, these efforts failed to control the rivers completely. Annual flood damages before 1944 averaged $5.2 million in the Sacramento Valley and $4.2 million along the San Joaquin River.

To help address these problems, the state and federal governments began to work together to establish water storage and conveyance systems to redistribute water during periods of the year when it was needed. In 1850, the state's first legislature created the office of the Surveyor General to study problems of navigation, drainage, and irrigation. Subsequently, the U. S. Bureau of Reclamation (originally known as the Reclamation Service) was established by the Reclamation Act of 1902 to help "reclaim" arid western lands by providing irrigation water. It was believed that storing floodwaters and building canals would foster western settlement and provide solutions to the social and economic problems farmers were experiencing at the time. Today, more than 80 years after

Reclamation's creation, irrigated agriculture is still a central feature of the Reclamation program.

The beginning of the federal irrigated agricultural program was met with great enthusiasm by California. Dozens of requests for projects were sent to the Secretary of the Interior. After detailed feasibility studies, it became apparent that a major diversion of vast quantities of water over hundreds of miles would be needed to support the continuing and expanding growth and development of the Central Valley. Since annual rainfall would not normally support agriculture, farmers were drilling deeper and deeper into the ground for irrigation water, and the cost of pumping water was becoming prohibitive. In addition, portions of the valley's two great rivers, the Sacramento and the San Joaquin, were frequently subject to flooding. Salt water from the ocean periodically overran channels serving fine cropland in the Sacramento - San Joaquin Delta (Delta), endangering the economy and inhibiting industrial development.

State attempts to remedy these problems led to passage of the California Central Valley Project Act in 1933, which provided for construction of Shasta Dam and a power plant on the Sacramento River; a transmission line and other works between the Shasta Dam site and Antioch; and the Contra Costa, Madera, and Friant-Kern Canals. The Great Depression of the 1930s, however, made state financing of such a plan impossible, so the state appealed to the federal government for help. Congress responded by authorizing construction of the CVP in 1935. Two years later, in 1937, Congress appropriated funds and authorized Reclamation construction and operation of the CVP. Construction of the Contra Costa Canal began on October 19, 1937.

The initial features of the CVP were constructed during World War II. Prior to the war, water planners in the Central Valley had been primarily concerned with developing irrigation supplies. During and after the war, the Central Valley experienced a rapid urban, agricultural, and industrial growth that increased demands for water and power beyond what the project could provide. Responding to this growth, Congress authorized the American River Division in 1949, which provided for the construction of Folsom and Nimbus Dams, reservoirs, and power plants. This action converted a limited single-purpose authorization for a flood control reservoir into an authorization for a substantially enlarged multipurpose project integrated into the CVP.

Many additional project features have been authorized, and most have been completed. Impetus for the great dams came from farmers and townspeople who returned the costs of construction many times over--not only in dollars, but in the food, fiber, jobs, energy, and investments that they have contributed to America's prosperity. As the West has grown and water resource needs have increased, Reclamation's mission has expanded as well. In addition to irrigation, its responsibilities now extend to hydroelectric power generation, municipal and industrial water supplies, river regulation and flood control, outdoor recreation, enhancement of fish and wildlife habitats, and water quality control.

LOCATION OF CVP SERVICE AREAS

The CVP service area extends for approximately 430 miles through much of California's Central Valley, from Clair Engle and Shasta Reservoirs in the north to Bakersfield in the south (Figure 1-1). The CVP service area also includes the San Felipe Unit, which is located in the adjacent coastal valleys.

The CVP service area has been divided into three separate service areas for purposes of the water contracting programs. The SRSA encompasses the northern portion of the CVP service area and includes the Shasta/Clair Engle Reservoir area and much the Sacramento Valley. Water contracting within the SRSA would affect portions or all of the counties of Shasta, Tehama, Glenn, Colusa, Yolo, and Solano.

The ARSA includes Folsom Reservoir and all of Sacramento and San Joaquin Counties. Water contracting within the ARSA would affect Sacramento and San Joaquin counties and a portion of Placer County.

The DESA includes all of the CVP service area located south and west of the Delta. It begins just south of the Delta, extends through the San Joaquin Valley to near Bakersfield, and includes the San Felipe Unit. Water contracting within the DESA would affect Fresno, Kern, Kings, Madera, Merced, San Joaquin, Tulare, Monterey, San Benito, Santa Clara, and Santa Cruz counties.

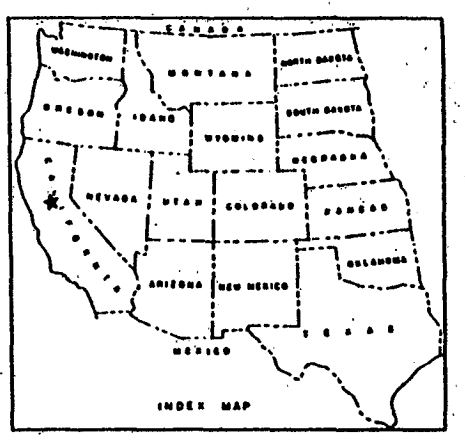
PURPOSE OF AND NEED FOR WATER CONTRACTING

Background

Reclamation has contracted to provide water service to California's Central Valley for multiple use purposes since completion of the initial features of the CVP in the 1940s. Contracts have been executed for the sale of agricultural and M&I water throughout the CVP service area. In addition, the project controls flood flows, generates hydropower, and provides water for fisheries, wildlife, and recreation.

Reclamation's multipurpose water development projects have played an indispensable role in the state's development, making California the nation's premier agricultural state. The CVP alone provides water to over 2.8 million acres in the vast Central Valley Basin. Crops grown on California lands irrigated by the CVP had a gross value of approximately $2.9 billion in 1986. The cumulative gross value of California crops produced on Reclamation-irrigated lands since Reclamation's first irrigation water was delivered to California farms 80 years ago is nearly $54 billion.

In addition to irrigation water, the CVP provides large volumes of water to meet demands for M&I water. In 1986, nearly 536,000 acre-feet (af) of water was delivered for domestic and M&I uses.



BUREAU OF RECLAMATION
COMPLETED OR AUTHORIZED WORKS

- DAM AND RESERVOIR
- CANAL
- TUNNEL
- CONDUIT
- DRAIN
- POWERPLANT
- PUMPING PLANT

CENTRAL VALLEY BASIN BOUNDARY

SERVICE AREAS

1 SACRAMENTO RIVER
2 AMERICAN RIVER
3 DELTA EXPORT

SPRING CREEK TUNNEL
SPRING CR DEBRIS DAM
SHASTA DAM
TRINITY DAM
LEWISTON DAM
CLEAR CREEK TUNNEL
JUDGE FRANCIS CARR POWERHOUSE
KESWICK DAM
COW CREEK UNIT
WHISKEYTOWN DAM
CLEAR CREEK SOUTH UNIT
RED BLUFF DIVERSION DAM
CORNING CANAL
ORLAND PROJECT
TEHAMA-COLUSA CANAL
SUGAR PINE DAM
AUBURN DAM
FOLSOM DAM
SLY PARK DAM
MORMON ISLAND PUMPING PLANT
NIMBUS DAM
COUNTY LINE DAM
FOLSOM SOUTH CANAL
DELTA CROSS CHANNEL
SOLANO PROJECT
CONTRA COSTA CANAL
NEW MELONES DAM
TRACY PUMPING PLANT
DELTA-MENDOTA CANAL
SAN LUIS DAM & PUMPING-GENERATING PLANT & O'NEILL DAM (FEDERAL-STATE)
O'NEILL PUMPING PLANT
SAN FELIPE DIVISION
LOS BANOS DETENTION DAM (FEDERAL-STATE)
DOS AMIGOS PUMPING PLANT (FEDERAL-STATE)
LITTLE PANOCHE DETENTION DAM (FEDERAL-STATE)
SAN LUIS CANAL (FEDERAL-STATE)
MADERA CANAL
FRIANT DAM
SAN LUIS DRAIN
COALINGA CANAL
FRIANT-KERN CANAL

Redding, Oroville, Yuba City, Marysville, Woodland, Sacramento, Napa, Oakland, San Francisco, San Jose, Santa Cruz, Los Banos, Fresno, Lodi, Bakersfield

SHASTA, LASSEN, MODOC, PLUMAS, SIERRA, BUTTE, GLENN, TEHAMA, LAKE, COLUSA, YUBA, SUTTER, YOLO, SONOMA, NAPA, SOLANO, EL DORADO, ALPINE, AMADOR, CALAVERAS, TUOLUMNE, MONO, SAN JOAQUIN, CONTRA COSTA, ALAMEDA, SAN MATEO, SANTA CLARA, MERCED, MADERA, FRESNO, INYO, SAN BENITO, MONTEREY, KINGS, TULARE, KERN, SAN LUIS OBISPO, SANTA BARBARA, VENTURA, LOS ANGELES

N

0 10 20 30 40 50 MILES
0 10 20 30 40 50 60 70 80 KILOMETERS

FIGURE 1-1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

CENTRAL VALLEY PROJECT

CALIFORNIA

APRIL 1983

214-208-8940

1-14

C-055449

Historically, Reclamation constructed CVP facilities to meet demands projected during the planning of these facilities. Today, however, the available remaining CVP yield of approximately 1.5 million af/yr is insufficient to meet the 3.4 million af/yr of estimated needs.

Adding to the water supply problem are concerns about water quality in the Delta that may ultimately affect the amount of water that can be delivered CVP-wide. In 1979, in response to environmental and water quality concerns, the U. S. Department of Interior (DOI) deferred contracting for additional long-term CVP water supplies until federal responsibility for water quality in the Delta could be determined. Studies by the California Department of Water Resources (DWR) and Reclamation to clarify joint responsibility of the CVP and DWR's State Water Project (SWP) in meeting water quality standards in the Delta resulted in a proposed Coordinated Operation Agreement (COA). Public Law (PL) 99-546 authorized Reclamation to execute the proposed COA, and in 1986 the state and federal governments signed the agreement. Under the agreement, the operational efficiency of both projects can be improved by joint use of facilities. Both parties are required to meet a specified set of water quality standards based on State Water Resources Control Board (SWRCB) Decision 1485. Provisions are made for the state to purchase interim CVP water, and for Reclamation to convey CVP water to federal contractors through the California Aqueduct. With signing of the COA and lifting of the moratorium by the Secretary of the Interior, Reclamation can resume long-term contracting of available and uncommitted water from the CVP.

Purpose of Water Contracting

Reclamation's long-term water contracting program would, in compliance with state and federal law, meet a combination of the objectives listed below. The program's purpose is not to optimally achieve one or more of these objectives at the expense of others, nor to achieve all objectives equally, but rather to provide a balanced water allocation which as a whole, best meets project, institutional, environmental, and human needs.

- o equitably allocate remaining CVP yield, considering original congressional legislation, other authorized project functions, and California water rights law and area of origin policies;

- o optimize the amount of water available for beneficial use, considering conjunctive use of surface water and groundwater for agricultural, M&I, and refuge use, and offstream storage at wildlife refuges;

- o increase the amount of water available for beneficial uses within California's Central Valley; and

- o optimize economic returns at the local, regional, and national levels.

Need for Water Contracting

In 1986 and 1987, Reclamation sent letters to potential water contractors in the SRSA, ARSA, and DESA asking them to identify how much new or additional water they wished to contract for from the CVP. Potential contractors were also asked to submit information substantiating their need for water and to submit site-specific data useful for EIS preparation.

Reclamation subsequently received requests from 84 agencies, totaling approximately 4 million af/yr. In accordance with Reclamation policy, these requests were evaluated to determine each of the requestor's actual water requirements based on acreage, cropping patterns, groundwater availability, population estimates, and other factors. It was determined that CVP water needs for agriculture, M&I, and refuges were about 3.4 million af/yr. In addition, requests for maintaining instream flows and satisfying recreational requirements have been received and are described in this EIS. Reclamation intends to use the water needs estimated during the EIS process as the basis for allocating the available and uncommitted yield of the CVP.

SCOPE OF EIS

Scoping Process

The Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR 1500-1508) require "an early and open process for determining the scope of issues related to a proposed action." The CEQ regulations define this process as "scoping." Scoping is designed to explore issues for environmental assessment, to ensure that important considerations are not overlooked, and to discover concerns that might otherwise go unrecognized.

Reclamation held six scoping and numerous other public and agency meetings to gather public input on the scope, content, and appropriate alternatives for each EIS. Notice of these meetings was published in the Federal Register and sent to over 300 federal, regional, state, and local agencies, organizations, and interest groups. Legal notices were also published in local papers circulated in the various service areas. Reclamation also sent letters explaining the status, scope, and alternatives to interested persons, districts, and agencies. See Chapter 7 for a more detailed discussion of the scoping process.

Reclamation used input received during the scoping process to prepare scoping reports for each EIS. These reports present the concerns that arose during the scoping process and describe in detail how Reclamation would address these concerns in each EIS. The scoping reports were distributed to the public, and Reclamation has considered the comments received in response to the information presented in the reports. Where appropriate, Reclamation has modified its approach to preparing the EIS's, the alternatives analyzed in the EIS's, and its methodologies for addressing impacts.

Based on the scoping process, the following resource issues were determined to be the most important for the water contracting EIS's, and consequently receive the most emphasis in the EIS's:

Surface Water Hydrology

- o amount of CVP water needed by each entity requesting water
- o changes in river flows, reservoir fluctuations, and Delta hydrology

Groundwater

- o potential for conjunctive use of other water supplies with CVP water
- o groundwater quality and quantity

Drainage and Seepage

- o potential and existing drainage and seepage problems

Surface Water Quality

- o changes in river, reservoir, Delta, and San Francisco Bay (Bay) water quality (including effects on agricultural return flows, municipal effluent, dilution of heavy metals, and temperature)

Fisheries

- o river fisheries (especially issues related to temperature, chinook salmon, steelhead trout, heavy metals dilution, anadromous fish migration and production, and spawning gravel)
- o reservoir, Delta and Bay fisheries

Vegetation and Wildlife

- o effects of land conversion, facility construction, and instream flows on vegetation and wildlife resources in the service areas, the Delta, and the Bay
- o effects of water contracting on refuges
- o effects of water quality and quantity changes on riparian and other water-dependent habitats

- effects on endangered, threatened, and candidate species (as required by the Endangered Species Act)

Recreation and Aesthetics

- effects of flow and reservoir changes on recreation and aesthetic resources, such as rafting, swimming, fishing, and boating

Economics

- social and economic conditions due to changes in agricultural production, accommodation of urban development, changes in recreational activities, changes in power production, and changes in fish and wildlife production
- rate of recovery of investment and operating costs of the CVP
- effects on regional and national economies

Land Use and Secondary Impacts

- consistency of alternatives with the CVP place of use, irrigable land criteria, floodplain and wetland policies, and local land use policies
- secondary growth-related effects of alternatives

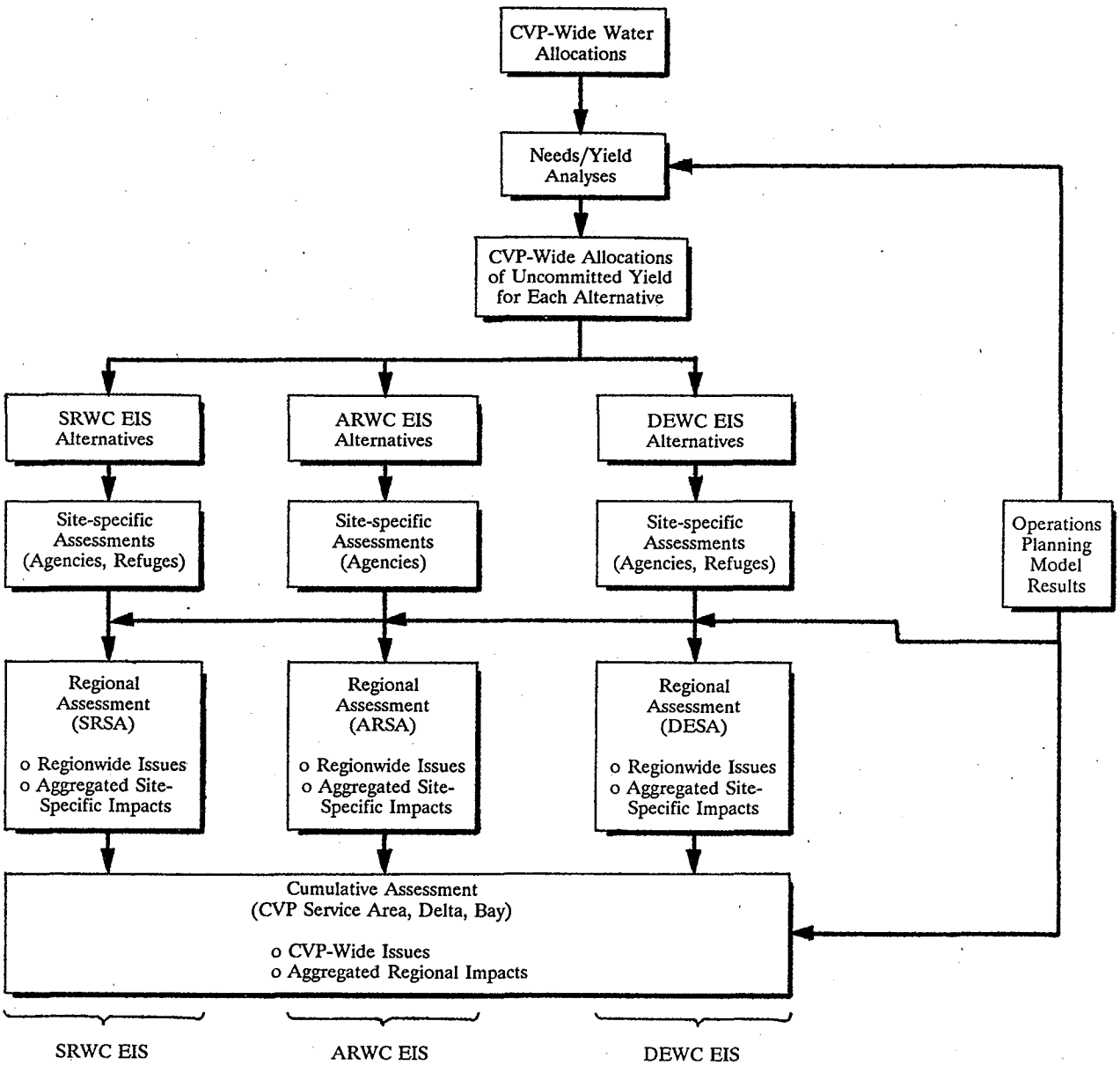
Cultural Resources

- effects of land conversion and reservoir fluctuations on archeological and historical resources

Approach To EIS Preparation

The water contracting EIS's include three levels of environmental assessment. First, each water contracting EIS focuses on a common set of CVP-wide water allocation alternatives and analyzes regional impacts of water contracting within a particular service area. Second, each EIS also includes a common cumulative impact asessment that focuses on CVP-wide impacts associated with water contracting in all three service areas. Third, to assist in program decision making, each EIS includes general analysis of site-specific impacts associated with individual agencies. The general approach to preparing the EIS's is shown in Figure 1-2.

Figure 1-2. Conceptual Approach to Water Contracting EIS Preparation



Abbreviations

SRWC = Sacramento River Water Contracting
ARWC = American River Water Contracting
DEWC = Delta Export Water Contracting
EIS = Environmental Impact Statement

Reclamation will use a two-tiered approach to NEPA compliance for individual new or expanded CVP contracts. The water contracting EIS's will serve as the first tier of environmental review by assessing broad, generic regional and cumulative impacts associated with water contracting. The water contracting EIS's will provide NEPA compliance for Reclamation's proposed water allocations within each of the three service areas.

Second-tier, site-specific NEPA environmental reviews, of much narrower scope, will be conducted prior to execution of contracts with each individual agency included in Reclamation's Proposed Action. The scope of subsequent site-specific environmental reviews will be limited to potentially significant site-specific impacts of water contracting within each agency; many of these impacts are preliminarily identified in the site-specific assessments contained in this EIS. The site-specific environmental reviews will provide site-specific compliance with NEPA and with other environmental review laws, such as the Endangered Species Act and the Naitonal Historic Preservation Act.

ORGANIZATION OF THE REPORT

Following this "Introduction" chapter, the EIS's contain the following chapters:

- Chapter 2, "Alternatives Including the Proposed Action," contains a description of the process used by Reclamation to develop CVP-wide alternatives and the proposed action in each EIS. It also includes a description of the service area alternatives and proposed action. Actions needed to implement the alternatives, Reclamation contracting requirements, proposed and alternative contracting principles, and a summary comparison of the impacts of the alternatives are also included.

- Chapter 3, "Affected Environment," includes descriptions of the service area, the proposed development plans of entities that requested water, and the identification of resources that could be affected by the water contracting alternatives.

- Chapter 4, "Environmental Consequences," describes the regional and site-specific impacts associated with the various water contracting alternatives.

- Chapter 5, "Cumulative Impact Analysis," contains a description of the cumulative impacts of all three water contracting programs on resources throughout the CVP service area that result from each alternative. Included is a discussion of the cumulative effects of the water contracting alternatives on Bay and Delta resources, along with an analysis of cumulative impacts of the three water contracting programs in combination with the impacts of future related projects.

- Chapter 6, "Impact Overview and Environmental Commitments," contains the various impact conclusions required by NEPA. Environmental commitments made by Reclamation to mitigate environmental impacts will be described in the Final EIS.

- o Chapter 7, "Consultation and Coordination," includes other NEPA-required information regarding consultation and coordination with other federal and state agencies and individuals.
- o Chapter 8, "List of Preparers," lists individuals involved in EIS preparation.
- o Chapter 9, "Reference," lists references cited in the EIS.
- o Chapter 10, "Index," is the EIS index.
- o Chapter 11 "Glossary," defines key technical terms used in the EIS.
- o Several appendices present supplemental technical information and are bound in the EIS.
- o Technical Appendices A-E present detailed technical information and data used in the development of the EIS. The technical appendices are separately bound and may be reviewed at Reclamation offices or selected libraries or purchased from Reclamation on request.

DESCRIPTION OF MAJOR CVP FACILITIES

CVP facilities included in Reclamation's water contracting program are described below. Table 1-1 shows the capacity of major CVP reservoirs.

Table 1-1. Capacity of Major CVP Reservoirs

Reservoir	Capacity (in thousands af)
Shasta	4,552.0
Keswick	23.8
Clair Engle	2,448.0
Whiskeytown	241.0
Folsom	1,010.0
Natoma	8.8
San Luis	2,041.0[a]
O'Neill	56.4[a]
Lewiston	14.7

[a]Jointly owned and operated with DWR

Shasta/Trinity River Divisions

The Shasta and Trinity River Divisions of the CVP control the runoff of the Sacramento and Trinity Rivers. Shasta Dam, the main feature of the Shasta Division, was one of the first structures of the CVP. The Trinity River Division was authorized by Congress in 1955 and completed in 1964.

Construction of Shasta Dam, situated on the Sacramento River near Redding, was started in 1938 and completed in 1945. Keswick Dam, located 9 miles downstream of Shasta Dam, reregulates the water releases from Shasta Reservoir and Whiskeytown Reservoir for power. The dam has migratory fish-trapping facilities that operate in conjunction with the Coleman Fish Hatchery 25 miles downstream on Battle Creek.

Trinity Dam, located on the Trinity River about 25 miles northwest of Redding, was completed in 1962. Lewiston Dam is located about 7 miles downstream of Trinity Dam and serves as an afterbay to Trinity Powerplant, located at the foot of Trinity Dam, and allows diversion of Trinity River flows. Whiskeytown Dam on Clear Creek regulates Clear Creek runoff and Trinity River diversions.

Other features associated with the Shasta and Trinity River Divisions include: Shasta Powerplant, located just below Shasta Dam; Keswick Powerplant, located at Keswick Dam; Trinity Powerplant at Trinity Dam; Lewiston Powerplant at Lewiston Dam; Clear Creek tunnel, allowing transfer of water from Lewiston Lake to Whiskeytown Lake; Judge Francis Carr Powerhouse at the outlet of the Clear Creek tunnel; Spring Creek tunnel, which conveys water from Whiskeytown Reservoir to the Spring Creek Powerplant and the Keswick Reservoir; Spring Creek Debris Dam, which provides some control of contaminated surface water runoff from old mining tailings on Spring Creek and stores sediment that would otherwise enter Keswick Reservoir; and distribution systems that provide water to irrigable lands in the northern Sacramento Valley.

The Trinity River Fish Hatchery, also included in this division, was built and is operated as mitigation for losses of salmon and steelhead spawning habitat. It is operated by the California Department of Fish and Game (DFG) and is located immediately downstream of Lewiston Dam.

Sacramento Canals Unit

This unit of the CVP was designed to provide irrigation water for the Sacramento Valley, principally in Tehama, Glenn, and Colusa Counties. The unit was authorized in 1950 and most of it has been completed. Facilities in this unit include the Red Bluff Diversion Dam, located 2 miles southeast of Red Bluff, which diverts water from the Sacramento River; the Tehama-Colusa Canal, which begins at the Red Bluff Diversion Dam and extends south through Glenn County and into Colusa County; and the Corning Canal, which diverts water from the Tehama-Colusa Canal approximately 0.5 mile downstream of the Red Bluff Diversion Dam and serves lands in Tehama County.

American River Service Area

American River Division

The American River Division regulates the runoff of the American River. Folsom Dam, located in eastern Sacramento County, was constructed by the U. S. Army Corps of Engineers (COE) and was transferred to Reclamation to be operated as an integral part of the CVP. Construction of the dam was begun in 1948 and was completed in 1956. Other facilities in this division include Folsom Powerplant at the foot of Folsom Dam; Nimbus Dam and Lake Natoma, designed to reregulate water releases for water, power, and other multiple uses made through Folsom Powerplant; Nimbus Fish Hatchery, built to compensate for the salmon and steelhead trout spawning areas that were inundated by the construction of Folsom/Nimbus Dams; and Nimbus Powerplant. The Sly Park Unit is also part of this division.

Auburn-Folsom South Unit

This unit of the CVP was designed to provide a new and supplemental water supply to alleviate groundwater overdraft conditions in the Folsom South Service Area, which includes Sacramento and San Joaquin Counties. Facilities included in this unit are Auburn Dam, Sugar Pine Dam, County Line Dam, and the Folsom South Canal. To date, only Sugar Pine Dam and a portion of the Folsom South Canal have been constructed.

Delta Export Service Area

Delta Division

The Delta Division provides for the transport of CVP water through the Delta. The primary facilities in this division, completed in 1951, include the Delta Cross Channel, a controlled diversion channel between the Sacramento River and Snodgrass Slough that allows water from the Sacramento River to be diverted through the short, excavated channel and flow through natural channels to the Tracy Pumping Plant; the Tracy Pumping Plant, located in the south Delta, which lifts surplus water available to the CVP in the Delta and water released from storage in Shasta, Clair Engle, and Folsom Reservoirs 197 feet into the Delta-Mendota Canal; and the Delta-Mendota Canal, which carries water from the Delta along the west side of the San Joaquin Valley for supplemental irrigation supply, for use in the San Luis Unit and to replace San Joaquin River water stored and diverted at the east side of the Valley at Friant Dam. Other facilities include the Contra Costa Canal and the Tracy Fish Collecting Facility at the Tracy Pumping Plant.

San Luis Unit

The San Luis Unit was authorized in 1960 to be built and operated jointly with the State of California, although original plans called for it to be part of earlier Trinity River authorizations. Some features are "joint-use facilities" of the federal government and the state. The principal function of Reclamation's portion of the facilities is to supply approximately 1.25 million af of supplemental irrigation water to some 600,000 acres located in the western parts of Merced, Fresno, and Kings Counties.

The principal federal and joint facilities associated with the unit are: San Luis Dam and Reservoir, located on San Luis Creek near Los Banos; O'Neill Dam and Forebay, located on San Luis Creek about 2.5 miles downstream of San Luis Dam, which provide the storage necessary to permit off-peak pumping and on-peak electrical power generation; O'Neill Pumping Plant, which lifts water from the Delta-Mendota Canal into O'Neill Forebay; San Luis Pumping-Generating Plant, which lifts water from O'Neill Forebay into San Luis Reservoir during nonirrigation seasons and releases water to O'Neill Forebay during the peak irrigation season; and the San Luis Canal, which extends from O'Neill Forebay to Kettleman City.

Other facilities associated with this unit include the Dos Amigos Pumping Plant, Pleasant Valley Pumping Plant, Coalinga Canal, Los Banos and Little Panoche Detention Dams and Reservoirs, and the San Luis Drain.

San Felipe Division

This division, authorized in 1967, is located in the central coastal area of California and includes the Santa Clara Valley in Santa Clara County, the northern part of San Benito County, the southern part of Santa Cruz County, and the northern edge of Monterey County.

The principal facility associated with this unit is the Pacheco Tunnel, which connects the service area of this division to San Luis Reservoir. Other facilities include: Coyote Afterbay Dam; San Justo Dam; Hollister Conduit; Pacheco Conduit; Santa Clara Tunnel and Conduit; and various pumping plants and switchyards. Facilities serving the Watsonville area are in the planning phase, with construction planned to begin in 1992.

RELATED ACTIVITIES

Reclamation and other agencies are undertaking a number of related activities that could affect CVP water contracting. The most important activities and their relationship to CVP water contracting are described below.

Consolidated and Expanded Place of Use

In 1985, Reclamation petitioned SWRCB to consolidate and expand the place of use for CVP water rights, to conform the water rights permits to the existing and proposed uses of CVP water, and to extend for 10 years, to the year 2000, the time allowed to put CVP water to its full beneficial use under the water right permits.

Consolidation would recognize the integrated operation of the project. Existing water right permits associated with individual units of the CVP do not contain uniform provisions regarding place and purposes of use. The CVP is, however, operated as a single integrated project. Once in the Delta, water from the Trinity, Shasta or American River Basins cannot be physically separated for use in specific CVP service areas.

Some CVP water contractors have expanded or are proposing to expand their service areas beyond places of use specified in CVP water rights permits, although these areas are within the federally authorized project service area. Expanding the water rights place of use would bring these areas into compliance with state law. Although approximately 4 million acres would be added, Reclamation is not planning to serve this entire area with CVP water. The primary purpose of the expansion is to create definable boundaries (present boundaries are impossible to physically locate on the ground) and also to bring areas currently being served into conformance with CVP water rights.

Reclamation has asked the state to revise water right permits for the CVP to include all project purposes in each permit. Such revisions would permit use of any project water for any project purpose.

SWRCB is the lead agency in preparing an environmental impact report (EIR) on the petitions described above. A Draft EIR is expected to be issued in 1989, and a final EIR is scheduled for December 1989.

SWRCB's approval of one or more portions of the petition may be necessary to allow Reclamation to enter into new long-term contracts with some of the users to be included in Reclamation's proposed water contracting actions. The water contracting EIS's identify which water requestors have lands outside the current and proposed place of use contained in the CVP water rights permits.

D-1485 and SWRCB Bay-Delta Hearings

The SWRCB is currently reviewing the existing water quality standards for the Bay-Delta estuary. Existing water quality standards for the Delta and Suisun Marsh were established by D-1485, adopted in 1978, and discussed in the Racanelli Decision (United States v. State Water Resources Control Board (1986) 182 Cal. App. 3d 82).

The Bay-Delta hearings are divided into three phases. Phase I hearings began in July 1987. The purpose of Phase I was to receive evidence on water uses in the Bay-Delta

estuary, and to receive presentations of recommended water quality standards. In Phase II, scheduled to begin in early 1989, interested parties will present comments on the draft water quality control plan and pollutant policy document which the SWRCB released in November 1988.

Phase III is scheduled to start later in 1989, after the SWRCB issues a final water quality control plan, a final pollutant policy document, and a document presenting alternative means by which the water quality control plan can be achieved. The focus of Phase III will be, first, to consider the impacts of the various alternatives for implementing the objectives in the salinity control plan and pollutant policy document and, second, to receive other information necessary for the SWRCB to implement them through a water rights decision.

The draft water contracting EIS's incorporate available information from the Phase I hearings. Proposed Reclamation water contracting actions recognize that D-1485 water quality standards must be met, and also recognize that future revisions to Bay/Delta water quality standards may occur. All CVP water service contracts will continue to include a water shortage and apportionment article permitting reduced deliveries in the event that hydrologic conditions are inadequate to meet all CVP obligations, including applicable Delta water quality standards.

Central Valley Fish and Wildlife Management Study

The purpose of this study is to develop a comprehensive base of information regarding some of the complex water-related fish and wildlife problems in the Central Valley. The study will also propose possible solutions to these problems and produce a framework of guidelines to solve future Central Valley water development problems.

Reclamation is the lead agency for the study. It sets policy and program direction and assigns study managers and team leaders to carry out the work. The core group consists of Reclamation, U. S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, DFG, and DWR. Based on the policy and program direction set by Reclamation, the core group defined the goals and objectives of the study and identified problems and opportunities. It is responsible for setting priorities, coordinating problem-solving efforts, and reviewing results.

The study consists of a series of appraisal studies that address three categories of problems and opportunities. The categories are anadromous fish, wildlife, and reservoirs. Several draft and final reports have already been released as part of the study, and applicable results have been incorporated into the water contracting EIS's.

Central Valley Task Force

The task force was set up in March 1986 at the request of Reclamation's Mid-Pacific Regional Director. The task force is composed of directors of six federal and state agencies: Reclamation, COE, the National Marine Fisheries Service, USFWS, DFG, and DWR. Support staff from each of these agencies are also assigned to this task force. The

purpose of the task force is to respond to concerns regarding fish and wildlife issues in the Central Valley.

Refuge Water Supply Study

Reclamation is the lead agency investigating potential delivery systems and water sources for 10 National Wildlife Refuges, four State Wildlife Management Areas, and private wetlands within the Grassland Resource Conservation District (collectively referred to as refuges). Participating in the study are USFWS, DFG, DWR and California Waterfowl Association (CWA). The Grassland Water District has also assisted in the study by providing funding through the CWA.

Alternatives providing four different levels of water supply to each of the 15 refuges are being evaluated and compared. These water supply levels range from the existing firm supply, to the amount that has been determined to be necessary for optimum management.

The decision on water allocation and delivery to the refuges will ultimately affect the amount of water that is available for other uses. Consideration has been given to the problems and needs of each refuge, such as the availability and quality of both surface water and groundwater; feasibility of using existing delivery systems; timing of deliveries; availability and cost of power; and protection of threatened and endangered species. The Refuge Water Supply Study will include a recommended plan for each refuge. The study is scheduled for completion in December 1989.

The water contracting EIS's have used results of the draft study to determine the water needs of wildlife refuges, and, with appropriate updates, to assess environmental impacts of providing CVP water to refuges.

Offstream Storage Studies

The offstream storage study is a planning study being conducted by Reclamation to seek out new storage locations that could provide additional water for the CVP south of the Delta. The emphasis is on offstream sites in the San Joaquin Valley. The study, scheduled for completion in September 1989, is now focused on what appear to be the four most feasible reservoir sites and one wetland site. The four reservoir sites are Los Vaqueros, Los Banos Grande, Wilcox, and Hungry Hollow. Offstream storage at these sites could increase CVP yield above that assumed for the water contracting EIS's.

Reclamation is also conducting an investigation of the concept of using wetland habitat for offstream storage of CVP water, thereby increasing CVP yield above that assumed for the water contracting EIS's. The water contracting EIS's recognize these potential increases in yield, but defer specific contracting actions for this increased yield until completion of the wetland habitat offstream storage study.

Delta Support Study

The Interagency Ecological Study Program for Bay-Delta estuary (also known as the Delta Support Study) began with a four-agency agreement in 1970. The initial four agencies involved were Reclamation, USFWS, DWR, and DFG. In 1985, two additional agencies became part of the program, the U. S. Geological Survey (USGS) and SWRCB.

The major purposes of the program are to perform the monitoring work required under D-1485 and to collect environmental information regarding the hydrology, water quality, fisheries, and wildlife of the Bay-Delta estuary. Annual reports are prepared that summarize the research and monitoring work done each year. Applicable results of the studies have been used in the water contracting EIS's.

Other Activities Related to the Sacramento River Service Area

DFG and DWR Instream Flow Incremental Methodology Study

The DFG and the DWR are participating in an Instream Flow Incremental Methodology (IFIM) study of the Sacramento River. The study will utilize the methodology developed by the USFWS.

The first phase of the project involves collecting data from 90 river transects at 12 sites from Keswick Dam downstream to Hamilton City. The study is directed toward the salmon and steelhead trout fishery resources, but the data collected will be useful for analyzing other fishery resources and recreational resources on this section of the Sacramento River. The first phase report, which will contain usable habitat versus flow data, is scheduled for completion in June 1989.

Recommendations resulting from this study will be considered by state and federal agencies and could result in changes in CVP operations. Available information from the study will be included in the Final EIS's.

Trinity River Basin Comprehensive Action Program

In the early 1970s, a 14-agency task force was established to evaluate problems on the Trinity River, emphasizing the observed large decline in the salmon and steelhead runs. It was determined that one factor in the reduction in these runs was the drop in Trinity River flows caused by the Trinity and Lewiston Dam projects.

The task force designed and set up a 12-year flow evaluation program to determine how much flow was needed for the Trinity River Fisheries Restoration Program. The program was approved by the Secretary of the Interior in 1981 and received funding in 1984.

The USFWS is managing the study under contract to Reclamation. Reclamation has reserved 340,000 af/yr for minimum instream flows in all but dry and critically dry

water years. This water will not be contracted through the CVP until determination is made regarding the instream flow needs of the fishery resource. The study will be completed in 1996, when the USFWS will make its recommendation regarding flows; prior to implementation, the recommendation must be approved by the Secretary of the Interior.

The water contracting EIS's recognize the 340,000 af/yr reservation, and none of the water contracting alternatives allocate this water to other uses. Recommendations for future increased instream flows may result from the Trinity River study, and will be acted upon by the Secretary of the Interior.

Red Bluff Diversion Dam Winter Operations

Reclamation is funding a 5-year $1 million dollar study by USFWS to identify the impact that Red Bluff Diversion Dam has on chinook salmon migration, both upstream and downstream, and to seek potential solutions to identified problems. USFWS completed a final field study report in September 1988. Reclamation is evaluating the recommendations and will prepare an implementation report in 1989.

In addition to the study described above, Reclamation raised all of the gates at the dam from essentially December 1, 1986, through April 4, 1987, to provide an unimpeded passage for winter-run chinook salmon past the dam. During that time, water was supplied to the Tehama-Colusa Canal from Black Butte Reservoir via the Orland project facility and a newly constructed intertie. Reclamation again raised the Red Bluff Diversion Dam gates during the winter of 1987-1988.

The winter operation of the Red Bluff Diversion Dam for the protection of winter-run chinook salmon could affect the ability to deliver water from the Tehama-Colusa Canal from December through March. The water contracting EIS's discuss the fisheries and wetlands impacts of raising the gate under various water contracting alternatives.

Shasta Water Temperature Control Study

Reclamation is planning to install a temperature curtain in Shasta Reservoir to allow greater regulation of the temperature of water released to the Sacramento River. The curtain is being proposed because chinook salmon populations are adversely affected by upper Sacramento River temperatures, which are generally too warm in dry and critically dry years for optimum egg and fry survival in the fall and too cold for optimum growth in the spring.

The river temperatures can be improved by optimizing the use of the cold water in Shasta Reservoir. The single elevation intake to the Shasta Reservoir power penstocks does not allow a variance of withdrawal level from the reservoir without a substantial loss of power generation. The present design does not provide a means to withdraw the warm water and conserve the cold water available in the reservoir during the spring or to withdraw the coldest remaining water during late summer and fall. This limitation can be corrected by providing a selective withdrawal capability.

An environmental assessment on the temperature curtain is being prepared and is expected to be completed in December 1988. The curtain is scheduled to be installed by June 1990. The water contracting EIS's describe the effectiveness of the temperature control curtain.

Iron Mountain Mine

Iron Mountain Mine is located in the upper Sacramento River watershed, approximately 9 miles northwest of Redding. Between the 1860s and 1962, Iron Mountain Mine was periodically mined for iron, silver, gold, copper, zinc, and pyrite. The mine area includes underground workings, an open pit mining area, waste rock dumps, and tailings piles.

Rain and surface water enter the ore bodies, producing sulfuric acid, which concentrates the heavy metals and results in acid mine drainage (AMD). The AMD then mixes with runoff from Spring Creek watershed and flows into the Spring Creek Reservoir. Usually, flows from Spring Creek Reservoir are controlled so that normal releases from Shasta Lake can dilute the effects of the AMD in the Sacramento River.

During periods of heavy rains, however, high volumes of AMD are produced and may cause Spring Creek Reservoir to fill, resulting in uncontrolled releases. Heavy metal contamination can enter the Sacramento River and adversely affect aquatic life.

In 1983, the U. S. Environmental Protection Agency (EPA) placed Iron Mountain Mine site on the Superfund National Priority List and subsequently conducted a study to determine the nature, cause, and extent of site contamination. On October 3, 1986, the EPA issued a Record of Decision (ROD) for remedial action at Iron Mountain Mine.

The remedial actions include: (1) capping caved and cracked ground to prevent rainwater from entering the ore body and reducing the production of AMD; (2) diverting Upper Spring Creek and South Fork Spring Creek water into other watersheds to bypass their normal routes through Spring Creek Reservoir; (3) diverting Slickrock Creek around tailings where it becomes contaminated, to lower concentrations of toxic materials in Slickrock Creek and Spring Creek Reservoir; and (4) enlarging Spring Creek Debris Dam, if necessary, to provide more storage capacity and greater operational flexibility.

EPA is also undertaking a pilot study to obtain additional information on the use of low density cellular concrete to fill underground mine workings to help reduce the formation of AMD, and on the effect of cellular concrete on the direction and rate of groundwater flows at the site. When the studies are complete, EPA will determine what additional remedial actions are required.

After implementing the remedial action, EPA estimates that water quality in the Sacramento River below Keswick Reservoir will meet EPA criteria and, in most years, the Regional Water Quality Control Board (RWQCB) standards, which were designed to prevent adverse impacts on aquatic life. These estimates were based on EPA studies which assumed that Sacramento River flows would not fall below those of water year 1978.

The water contracting EIS's discuss the potential effects of AMD from Iron Mountain Mine on Sacramento River water quality and fisheries.

Shasta Unit Waste Discharge Requirements

The Central Valley RWQCB recently adopted waste discharge requirements for the Shasta/Trinity Divisions of the CVP. Reclamation has filed a petition for review of these requirements by the SWRCB because Reclamation believes that the requirements exceed the RWQCB's regulatory authority under applicable federal and state law and that enforcement of the requirements would constitute an unlawful interference with CVP operations as mandated by Congress. Although Reclamation has raised these legal objections, Reclamation remains committed to taking numerous actions to reduce Sacramento River temperature and fisheries problems.

Other Activities Related to the American River Service Area

American River Flood Control Activities

In January 1988, COE completed a Reconnaissance Report for the American River Watershed that defined future flood problems and identified potential evaluations and alternative plans for a future feasibility study. The COE initiated its 2-year feasibility study in August 1988.

The findings of the COE to date indicate: 1) that to provide the Federal Emergency Management Agency (FEMA) with 100-year level of flood protection for the developed areas of the City and County of Sacramento would require more than the authorized flood control storage space in Folsom Reservoir, and 2) only construction of upstream flood control storage could achieve high levels of protection (200 or more years).

To provide the 100-year FEMA interim level of protection, the City and County of Sacramento have requested that interim flood control storage be included at Folsom Reservoir. The FY 1989 Energy and Water Development Appropriations Bill includes funds for the COE to evaluate providing interim flood control storage at Folsom Reservoir to provide at least 100-year protection to areas within the City and County of Sacramento. Reclamation will be assisting the COE in these evaluations, which will include the preparation of a report and a COE EIS to assess impacts on water supply, hydropower, fisheries, recreation and other environmental resources.

Environmental Defense Fund et al. v. East Bay Municipal Utility District

The East Bay Municipal Utility District (EBMUD) contracted with Reclamation in 1970 to purchase up to 150,000 af/yr from the American River watershed for delivery by diversion into the Folsom-South Canal at Nimbus Dam, immediately below Folsom Reservoir. In 1972, the Environmental Defense Fund and others filed a lawsuit that seeks to prevent EBMUD from diverting water from the American River; Reclamation is not a

party to this lawsuit. In late 1984, the court appointed the SWRCB as referee and directed the board to conduct an investigation and prepare a report of referee on 21 specific legal, technical, and public trust issues.

In June 1988, the SWRCB issued its final report of referee for responding to the instructions of the court. The SWRCB recommended that EBMUD be allowed to divert water from the Folsom-South Canal subject to specified river flow limitations. The report of referee will be taken under consideration by the court, which will issue a decision on the lawsuit.

The water contracting EIS's assume that EBMUD will exercise its contractual right to divert CVP water from the Folsom-South Canal. Changes in points of diversion of EBMUD and other existing ARSA contractors are, however, examined as alternatives in the ARWC EIS.

Auburn Dam

Reclamation has been studying the construction and funding of Auburn Dam for more than three decades, and these studies are continuing. In September 1988, the American River Authority proposed to contribute funds towards the costs allocated to water and power functions for a 2.3 million af multipurpose Auburn Dam. Although Auburn Dam is an authorized feature of the CVP, the water contracting EIS's do not assume the eventual construction of Auburn Dam but in Chapter 5 briefly evaluate the effects of a multipurpose Auburn Dam on CVP yield, on deficiencies in critically dry years, and on Folsom Reservoir water levels and American River flows.

Natural Resources Defense Counsel v. Stamm

In 1974, a federal district court found that Reclamation's 1972 EIS and 1973 Supplemental EIS on the Auburn-Folsom South Unit (which includes Folsom-South Canal and Auburn Dam) was sufficient to meet NEPA requirements with respect to Auburn Dam. Parties to the lawsuit, however, stipulated to stay the court's consideration of the EIS's sufficiency with respect to future completion of Folsom-South Canal pending completion of an American River flow study by DOI.

Although the flow study has been completed, the court has abstained from deciding, and has retained continuing jurisdiction over claims that the EIS failed to comply with NEPA insofar as further construction of the Folsom-South Canal and operation of the Auburn-Folsom South Unit are concerned. The court ordered Reclamation to give both the court and the parties to the litigation 60 days notice prior to further construction of Folsom-South Canal and to give the parties 60 days notice prior to Reclamation entering into any new water service contracts for water from the Folsom-South Canal. The ARWC EIS analyzes the impact of entering into such new water contracts.

Pleasant Valley Water Project

On December 17, 1985, Reclamation published a Notice of Intent (NOI) to prepare a joint EIS/EIR in cooperation with the Pleasant Valley Water District to addresses the impacts of constructing, operating, and delivering water to the Pleasant Valley water distribution system. Reclamation has included the analysis of the Pleasant Valley Water District water contracting proposal in the DEWC EIS. Pleasant Valley Water District is completing the EIR for the project.

Reclamation/DWR Wheeling-Purchase Contract

In 1986, the state and federal governments signed the COA, clarifying the joint responsibility of the CVP and SWP in meeting water quality standards in the Delta. Execution of the agreement by the Secretary of the Interior was authorized in PL 99-546.

Subarticle 10(h) of the COA provides that Reclamation and DWR shall negotiate a contract for the conveyance (wheeling) and purchase of CVP water by the state to assist each party in making more efficient use of the state and federal water project facilities and water supplies. The exchange of such services is presently under consideration.

The DEWC EIS discusses impacts of implementation of Subarticle 10(h). Reclamation and DWR expect to prepare additional environmental documentation, either separately or jointly, to address site-specific impacts.

San Joaquin Valley Drainage Program

The San Joaquin Valley Drainage Program is a cooperative effort among Reclamation, USFWS, USGS, DFG, and DWR. These agencies have joined forces in an interagency study team whose purposes are to investigate the problems associated with the drainage of agricultural lands in the San Joaquin Valley and to develop solutions to those problems.

The purpose of the San Joaquin Valley Drainage Program is to develop plans to resolve the problems associated with drainwater generated by irrigated agricultural lands in the San Joaquin Valley. These problems affect a broad range of both public and private interests; hence, the program has numerous objectives, which are grouped into four categories:

- Public health: satisfy public health standards; minimize potential health risks.
- Water quality: protect existing and future reasonable and beneficial uses of surface water and groundwater; restore to the maximum extent practicable the quality of surface water and groundwater resources damaged by agricultural drain water.

- o Fish, wildlife, and their habitats: protect existing fish and wildlife resources; Restore or mitigate to the maximum extent practicable fish and wildlife resources damaged by agricultural drainwater; and enhance fish and wildlife resources in the San Joaquin Valley beyond restoration and mitigation levels.

- o Agricultural lands and productivity: ensure to the maximum extent practicable the long-term protection and productivity of farmland in the San Joaquin Valley.

The DEWC EIS uses available information from the program in analyzing drainage impacts of water contracting alternatives.

Petitions for Changes in Points of Diversion

In the last several years, Reclamation has filed a number of separate petitions with the SWRCB requesting the addition of the SWP's Banks Pumping Plant as a temporary point of diversion and rediversion for CVP water. In 1981, Reclamation filed a petition to permanently add Banks as a point of diversion and rediversion, but, primarily because of the Bay-Delta hearings, action on that petition was delayed; this petition will be addressed during Phase III of the Bay-Delta hearings.

In August 1988, Reclamation filed a petition with the SWRCB to temporarily add Banks as a diversion point to temporarily supply 110,000 af/yr of water to Kern County pending action on the petition to permanently add Banks. An EIR is presently being prepared and is scheduled for completion in spring 1989. The period covered is from 1989 through February 1996, or until the SWRCB acts on the permanent petitions, whichever is earlier.

In July 1988, Reclamation filed an urgency petition with the SWRCB to temporarily use Banks to wheel 7,500 af/yr to Kern National Wildlife Refuge and to replace pumping lost because of several other project activities. The SWRCB approved this petition in September 1988.

In September 1988, Reclamation filed an urgency petition with the SWRCB to temporarily use Banks to replace pumping capacity foregone because of actions to enhance conditions for salmon below Shasta Dam and to deliver 45,000 af/yr of water from New Melones Reservoir to Grassland Water District for fish and wildlife purposes, and to supply an additional 1,500 af/yr of water to the Kern County area. This petition was approved by Board order.

San Joaquin Valley Conveyance Study

On May 29, 1987, Reclamation published a Notice of Intent to prepare an EIS for the San Joaquin Valley Conveyance Study. The purpose of the study is to determine how additional water may be supplied to the San Joaquin Valley to relieve the present groundwater overdraft. Reclamation has included the environmental analysis of the San Joaquin Valley Conveyance Study in the DEWC EIS.

Stanislaus-Calaveras River Basin Water Use Program

Reclamation and DWR, together with many participating local entities, initiated the Stanislaus-Calaveras River Basin Water Use Program in 1988. The program will evaluate plans to meet the water needs within local areas, including the Central San Joaquin Water District and Stockton East Water District. A Memorandum of Understanding was developed to permit the evaluation of plans for more effective use of groundwater, improved fishery and water quality conditions in the Stanislaus River, and development of additional water supplies for the SWP and CVP from the Delta. A planning report and EIR/EIS will be prepared to evaluate the alternatives developed in this program.

South Delta Water Management Program

An October 1986 agreement between Reclamation, DWR, and the South Delta Water Agency committed all three parties to work toward development of a mutually acceptable, long-term solution to the water supply and environmental problems of South Delta Water Agency water users. The particular objectives of the South Delta Water Agency are to improve and maintain water levels, circulation patterns, and water quality in the south Delta area. The south Delta area includes a portion of Delta channels south of Stockton. An EIR/EIS is being prepared and will evaluate alternatives to meet the South Delta Water Agency's objectives. The recommended program is expected to result in measures to mitigate adverse effects of CVP and SWP exports from the Delta.

North Delta Water Management Program

DWR has also undertaken a North Delta Water Management Program whose primary objectives are to help alleviate flooding in the towns of Thornton and Walnut Grove, reduce reverse flows in the lower San Joaquin River, improve water quality, reduce fishery impacts, and improve water supply reliability. Secondary objectives are to improve navigation and enhance recreational opportunities. An EIR is being prepared to evaluate alternatives to meet these objectives. The recommended program is expected to result in measures to mitigate adverse effects of CVP and SWP exports from the Delta.

Contra Costa Water District v. Hodel

This case (U. S. Dist. Ct., N. D. Calif., Civil No. C-75-2508-SW) originated on November 26, 1975, and is a challenge to the sufficiency of the San Luis Unit EIS to support a decision by the Secretary of the Interior to commit to Westlands Water District (WWD) on a long-term basis the delivery of an additional 250,000 af/yr of CVP water. On April 5, 1977, Contra Costa Water District (CCWD), the federal defendants, and WWD (a defendant and intervenor) entered into a stipulation wherein the United States agreed to prepare a supplement to the San Luis Unit EIS no later than April 1, 1979. That stipulation was subsequently amended to require the federal defendents to complete the

DEWC EIS by December 31, 1989. The DEWC EIS recognizes the status of this litigation and analyzes the impacts of delivery of the additional 250,000 af/yr of CVP water to WWD.

Westlands Water District Intertie Project

WWD is studying the feasibility of constructing an intertie from the CVP's Delta-Mendota Canal to the California Aqueduct. The intertie, which could add to cumulative impacts in the Delta, would convey approximately 125,000 af/yr of interim water for 5-7 years beginning in the winter of 1989. Although the water could be diverted at CVP diversion facilities under existing water right permits, portions of the Delta-Mendota Canal currently lack the capacity to convey the additional water.

WWD and Reclamation have prepared and released a Draft EIR/EIS that evaluates various alternatives for diverting and conveying the water. The Final EIR/EIS is scheduled to be released in January 1989.

Los Vaqueros Project

In 1986, CCWD adopted the Los Vaqueros project in concept. The project, which could add to cumulative impacts in the Delta, involves constructing and operating a water supply reservoir in eastern Contra Costa County to provide increased water quality and water system reliability to CCWD customers. Water would be diverted from either CCWD's existing intake or from some new point of diversion in the Delta. CCWD is conducting biological and geotechnical studies of the watershed and has begun preliminary engineering design. A Draft EIR on the project is scheduled to be released in fall 1989, and a Final EIR is scheduled for release in spring 1990. A bond election enabling local financing of the project was approved by voters in November 1988.

Kellogg Unit Reformulation Study

The Kellogg Unit Reformulation Study is examining relocation of the Contra Costa Canal intake from its existing location at Rock Slough to Clifton Court Forebay to improve water quality for Contra Costa Water District (CCWD). The Highline Canal has been identified as the recommended plan. The Highline Canal will be designed so that it can also serve as the intake to a Los Vaqueros Reservoir. The Planning Report/Draft Environmental Statement will be filed in November 1988, and the final will be available in 1989. If authorized by Congress, implementation of the project is scheduled to begin in 1991.

Delta Islands Water Storage

Bedford Properties, Inc. (Bedford) has proposed to use four islands in the Delta for the purposes of storing water for later sale and operating waterfowl hunting clubs. This project could add to cumulative impacts in the Delta. Bedford has applied to the SWRCB, Division of Water Rights, for the permits necessary to seasonally store unappropriated

surface water. SWRCB will prepare an EIR on the proposed project under The California Environmental Quality Act (CEQA). Bedford has also applied to the COE for Section 10 and Section 404 permits. To avoid duplication of effort, SWRCB and COE have decided to prepare a joint EIR/EIS scheduled for early 1989.

Westlands Water District v. United States of America, et al.

This case (Civil No. CV-F-81-245-EDP, U. S. District Court, Eastern District of California) resulted in a stipulated judgment concerning WWD's contractual entitlement to CVP water. The stipulated judgment requires Reclamation to perform its 1963 water service agreement for 900,000 af/yr and to provide provisional water service of 250,000 af/yr to WWD until conclusion of the (Contra Costa Water District v. Hodel lawsuit described above).

The stipulated judgment requires Reclamation, subject to compliance with NEPA, federal reclamation law, the Administrative Procedure Act, and requirements of agency decision making, with WWD's cooperation, to enter into a long-term contract with an improvement district in WWD for the 250,000 af/yr effective by March 1 of the year following the conclusion of the Contra Costa Water District lawsuit, unless that lawsuit is concluded by a final dismissal with prejudice, in which event the long-term contract would become effective 2 years after such dismissal. If such a contract is not entered into by the applicable date, WWD will be entitled to revive its claim based on an existing entitlement to such a contract or file a new lawsuit challenging Reclamation's decision not to enter into such a contract. The stipulated judgment further requires Reclamation to make a good faith effort to provide for delivery of an additional annual supplemental water supply of 100,000 af/yr to WWD at such time as additional CVP water becomes available for long-term contracting and subject to the then-prevailing water contracting policy and all applicable provisions of law. The water contracting EIS's are consistent with the stipulated judgment's requirements.

Institutional Constraints and Considerations

Institutional Constraints

The scope of Reclamation's water contracting program and water contracting EIS's is influenced by a large number of legal, regulatory, and policy constraints and considerations. Several important institutional constraints are reviewed in the preceding "Related Activities" discussion, including compliance with existing D-1485 Delta water quality standards.

A more detailed discussion of other institutional constraints used in the determination of available CVP yield and the development of water contracting alternatives is presented in Chapter 2 of the EIS. These constraints include CVP water right permit conditions, Delta pumping permit conditions, and current contractual obligations.

Other Institutional Considerations

Participants in the scoping process raised a number of institutional considerations related to the water contracting EIS's. The effects of these considerations on the scope of Reclamation's water contracting program and water contracting EIS's are reviewed below.

Need for a Single CVP-Wide Programmatic EIS. Some scoping process participants requested Reclamation to prepare a single CVP-wide "programmatic" EIS. Reclamation has adjusted its approach, preparing three water contracting EIS's, to respond to the concerns underlying this request.

The three water contracting EIS's are essentially on the same schedule and available for public review at the same time. Each EIS includes a uniform discussion of CVP-wide water allocation alternatives and cumulative CVP-wide impacts. The proposed actions in each of the EIS's are consistent.

Overall, this approach is a practical and reasonable method for achieving NEPA compliance. Reclamation has retained the approach of preparing a separate EIS for each major CVP service area because each service area has unique site-specific and regional issues that merit detailed consideration in a separate NEPA document.

Timing of the Water Contracting EIS's. Some scoping process participants stated the belief that Reclamation should not be evaluating new CVP water contracts because the signing of the COA did not meet the intent of the Andrus decision, which imposed a moratorium on new CVP water contracts pending resolution of a number of environmental concerns. Alternatively, they suggested that contracting should await the outcome of water quality standard hearings by the SWRCB to be concluded in 1992.

Reclamation views PL 99-546 as legislation satisfying the intent of the Andrus decision. In addition to authorizing the Secretary to sign the COA, this legislation also requires the Secretary to operate the CVP in conjunction with the SWP in conformity with state water quality standards for the Bay/Delta estuary unless the Secretary determines that such operation is not consistent with the congressional directives to operate the CVP. The legislation also directs the Secretary to reserve from contracting 25 percent of the firm annual yield of the CVP not presently committed under long-term contracts until 1 year after the Secretary transmits to Congress the report "Refuge Water Supply Investigations, Central Valley Basin, California."

Other sections of the legislation authorize the Secretary to execute and implement the Suisun Marsh Agreement among the DFG, the DWR, Suisun Resource Conservation District, and Reclamation. That agreement provides for the construction of facilities and operation of the CVP in conjunction with the SWP to meet marsh water quality standards specified in the agreement. Implementation of the agreement is a major action by federal and State of California water development agencies to continue to improve waterfowl habitat in California.

Regarding the review of water quality standards and the proposal to delay considerations of contracting actions, it is worth noting that such reviews must, by law, be conducted every 3 years. Realistically then, such reviews are a perpetual reevaluation.

Reclamation beleives it is appropriate to proceed with water contracting at this time while preserving the ability to achieve appropriately established water quality standards.

The CVP is a multipurpose project and Reclamation will, in conjunction with the state, continue to work to meet all authorized purposes in an integrated and balanced manner. Part of this balance includes working with a variety of interests, including municipal and agricultural water users, who need additional supplies of water in the immediate future to prosper and meet existing and future requirements. Reclamation is currently evaluating requests for CVP water supplies in the SRSA, ARSA, and DESA. The alternatives examined in each of the EIS's also include a range of water allocations for fish and wildlife purposes. Reclamation recognizes that providing water for fish and wildlife purposes is one of the project's authorized uses. Reclamation believes that resolution of fish and wildlife problems in the Central Valley is an important process and that Reclamation's participation in that process is part of the CVP's overall objectives.

In addition to the above, Reclamation has been working actively during the past years to resolve fish and wildlife problems in the Mid-Pacific Region. Major programs to improve fish and wildlife habitat have been initiated on the Sacramento, Stanislaus, and Trinity Rivers and the Delta estuary. Reclamation is either the lead agency or has a major role in funding each of these programs. (See "Related Activities" section.)

Area of Origin Policies. The State of California's County of Origin and Watershed Protection Statutes generally provide certain priorities for the use of water within counties of origin, and within watershed of origin and adjacent areas, respectively. In addition, the Delta Protection Act imposes certain limitations on export of water from the Delta. Reclamation's water contracting activities will continue to be consistent with these area of origin statutes.

Reclamation recognizes the underlying general state policy that area of origin water needs should be fully considered when planning future water exports from the Delta. This general policy is reflected in several of the water contracting alternatives and in Reclamation's proposed water contracting actions (Chapter 2).

Mitigation for Past and Present CVP Impacts. Several scoping process participants suggested that Reclamation should not enter into new CVP contracts until environmental impacts of past and present CVP operations have been fully mitigated. It is important to distinguish those effects directly caused by the CVP from effects caused by other factors. Therefore, Chapter 5 of the EIS reviews historical declines in the Central Valley's fish, vegetation, and wildlife resources, discusses causes of these declines, and identifies existing and potential mitigation measures where impacts caused by the CVP can be clearly isolated.

Processes other than Reclamation's water contracting program and water contracting EIS's are addressing this issue. These include the Central Valley Task Force and the Central Valley Fish and Wildlife Management Study. (See preceding discussion of "Related Activities.") Actions taken under this process include the Trinity River Reservation Plan, the Red Bluff Diversion Dam Action Plan, the Suisun Marsh Protection Plan, and others.

Water Transfers. Water transfers, also known as water marketing, involve the sale or transfer of water or water rights from one user to another. Water transfers have

received increasing attention in California, particularly transfers from agricultural to urban entities. Although state legislation encourages water transfers, few water transfers have occurred or are anticipated in the near future. Water transfers are being approached cautiously because of possible adverse economic and environmental effects, water rights questions, and impacts on third parties other than the buyer and seller (California Department of Water Resources 1987).

Because the pace of implementing water transfers is proceeding slowly, water transfers in general are not a reasonable alternative to meeting the considerable needs for CVP water that Reclamation has identified. Reclamation will continue to include a clause to new CVP water contracts allowing for assignment of CVP water service contracts upon Reclamation approval. Follow-up NEPA compliance may be necessary for Reclamation approval of specific assignment proposals.

Provision of CVP Water to Subsidized Crops. Some scoping process participants suggested that CVP water should not be provided to lands growing subsidized crops, since this amounts to a "double subsidy." Reclamation has no authorization under existing legislation to exclude lands growing subsidized crops from receiving CVP water, but recognizes that the relationship between federal irrigation programs and agricultural support programs is an important issue of national policy. This issue is being addressed at the national level by the DOI and Congress. It would be inappropriate for the CVP water contracting program to address this issue unless Congress decides to change these laws.

Water Pricing. Some scoping process participants suggested that the water contracting EIS's examine alternative CVP water pricing policies. Such an analysis, however, is beyond the scope of the EIS's. The Secretary of the Interior has approved an agricultural water rate-setting policy which is currently being used to evaluate cost-of-service rates in the CVP. Presently, work is underway to develop a rate-setting policy for M&I contracts. Both policies are required by law to consider the cost of project construction, operations and maintenance, and replacement for storage, conveyance, and pumping in establishing the price of water for CVP users; neither policy attempts to establish water prices to reduce water demand jor to collect more than the costs actually incurred.

The agricultural rate-setting policy proposal was finalized in May 1988. M&I rates will be set under Reclamation's interim M&I rate-setting policy, and will ultimately be calculated in accordance with a final M&I rate-setting policy currently under development. The EIS analyses of alternatives assume that these rates, established under existing law, will be used.

Consistency with State and Federal Wild and Scenic River Acts. Several scoping process participants asked that the EIS examine the consistency of water contracting alternatives with the State and Federal Wild and Scenic River Acts. The lower American River is included in both the state (Pub. Res. Code Sec. 5093.54 [e]) and federal (Federal Register, January 23, 1981 p. 7484) wild and scenic river systems. Although both the state and federal acts set forth certain legal protections for designated river segments, neither act appears to preclude Reclamation from entering into new or expanded CVP contracts even though lower American River recreational, aesthetic, and fisheries values may be diminished (SWRCB 1988). Neither act contains provisions preventing Reclamation's excercise of its existing CVP appropriative water rights.