Chapter 19

Cumulative Effects

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Approach to Cumulative Impact Analysis

Legal Requirements

State CEQA Guidelines and NEPA regulations require that the cumulative impacts of a proposed project be addressed in an EIR/EIS when the cumulative impacts are expected to be significant and, under CEQA, when the project's incremental effect is cumulatively considerable (15130[a], 40 CFR 1508.25[a][2]). Cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions (15355[b], 40 CFR 1508.7). Such impacts can result from individually minor but collectively significant actions taking place over time.

Section 15130 of the State CEQA Guidelines states that the discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone. The level of detail should be guided by what is practical and reasonable.

Methodology

According to the State CEQA Guidelines (Section 15130), an adequate discussion of significant cumulative impacts should contain the following elements:

- an analysis of related future projects or planned development that would affect resources in the project area similar to those affected by the proposed project,
- a summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available, and
- a reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

To identify the related projects, the State CEQA Guidelines (15130[b]) recommend either:

- the list approach, which entails listing past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or
- the projection approach, which uses a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document that has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.

NEPA and Reclamation's NEPA Handbook do not provide specific guidance as to how to conduct a cumulative impact assessment. The cumulative impact assessment requirements under CEQA do provide specific guidance and are consistent with and more stringent than under NEPA. Therefore, this assessment focuses on meeting the requirements of CEQA as discussed in the State CEQA Guidelines. For the FRWP, cumulative impacts are analyzed both quantitatively and qualitatively. The following sections describe each approach.

Those actions that are truly considered "reasonably foreseeable" and that would, along with the FRWP alternatives, contribute to potential cumulative impacts are included in the quantitative analysis of cumulative impacts discussed below. This quantitative analysis focuses largely on water-related issues because the anticipated future cumulative conditions have been established through the CALSIM II modeling process. The FRWP alternative facilities themselves are relatively minor and are independent of other projects. In addition, most of the effects associated with the facilities would be temporary and would be associated with the project construction phase only. Therefore the FRWP alternative facilities have little potential to contribute substantially to cumulative effects.

The qualitative analysis of cumulative effects below attempts to take into account other projects that are being discussed by various entities but which have not been sufficiently defined to be considered "reasonably foreseeable." The qualitative analysis also addresses non-aquatic resource cumulative effects to which the FRWP alternatives could conceivably contribute. This analysis is qualitative because most of the effects would be temporary and occur during the construction phase, because to the extent more permanent effects could occur the impacts of other projects are not currently quantifiable, and because it is unlikely that the FRWP alternatives' contribution to such cumulative effects, to the extent they could occur, would be considered cumulatively considerable.

Quantitative Cumulative Impact Analysis

Cumulative impacts of both action alternatives considered in this EIR/EIS on the CVP, including impacts on hydrology and water supply, water quality, and fisheries, are discussed quantitatively in Chapters 3, 4, and 5, respectively. This

quantitative analysis takes into account reasonably foreseeable future increased water use by water rights holders, other CVP contractors, the SWP, and representations of system-wide operations under the Environmental Water Account and Central Valley Project Improvement Act requirements. The technical approach for conducting the cumulative impact assessment involved comparing CALSIM II hydrologic model output for the 2020 level of development with the FRWP and project alternatives (CALSIM II 2020 benchmark study) to the existing condition (2001 level of development without the FRWP or alternatives per DWR's Bulletin 160-98). This 2020 level of development is representative of long-term future land use patterns and related water demands projected under DWR's Bulletin 160-98 (California Department of Water Resources 1998). Examples of actions included in the quantitative cumulative analysis include Reclamation's Operating Criteria and Plan and Trinity River Mainstem Restoration Program, and increased diversions within the American River Basin consistent with Sacramento Area Water Forum projections. To assess the incremental contribution of the FRWP and project alternatives to cumulative impacts, the operation of the FRWP and the project alternatives were then subtracted from the 2020 benchmark study and an assessment was made of environmental conditions without the project. That scenario represents the appropriate disclosure of cumulative impacts on the CVP, SWP, other water users, and environmental resources. By subtracting the FRWP from the overall cumulative scenario, the incremental contributions of the FRWP can be defined.

A detailed description of CALSIM modeling assumptions for the cumulative impact analysis is contained in Volume 3. Based on the CALSIM modeling conducted for the project as discussed in the subject chapters, the project alternatives have little potential to add to cumulative impacts that are projected to occur regardless of whether any of the project alternatives are implemented.

This quantitative assessment of cumulative impacts includes the likely projected water use by agencies holding entitlements for water in the basin. Use of these assumptions defines the extent to which cumulative impacts of the FRWP can reasonably be analyzed quantitatively. Cumulative impacts that may be associated with other future actions that cannot be defined quantitatively at this time are discussed below.

Qualitative Cumulative Impact Analysis

Other Projects and Programs

EBMUD Bayside Groundwater Project

This project would provide EBMUD a supplemental water supply and would reduce the frequency and severity of rationing required of customers. The project includes deep aquifer injection/extraction wells, associated piping,

treatment as needed, and a transmission pipeline in the San Lorenzo/San Leandro area.

In 2001, a draft EIR was released. Concerns voiced during the comment period included: safety of air emissions from the proposed treatment plant, potential subsidence issues related to pumping, and water quality. The Alameda County Water District (ACWD) and the City of Hayward also expressed concern about the potential effect of the Bayside Groundwater Project on the Niles Cone Groundwater Basin.

As a result, a regional aquifer test was completed and groundwater modeling will be completed in 2003. This modeling will confirm the degree of connection between the Niles Cone (Fremont) and South East Bay Plain (San Lorenzo) groundwater basins. The current schedule for the Bayside Project includes project design and construction in 2004 and 2005 with the project in service in 2005.

The Bayside Groundwater Project is not anticipated to contribute to cumulative impacts. The amount of water injected and extracted is exceedingly small. The injection/extraction area is already highly developed and the required facilities would be minimal. No cumulative impacts would result.

San Joaquin County–Freeport Interconnect Project

Project Water Supply

In 1990, San Joaquin County submitted an application to the State Water Resources Control Board (SWRCB) to appropriate wet-year water by direct diversion (105,000 AFA) and storage (190,000 AFA) from the American River under Application 29657 for a total combined diversion and storage of 322,000 AFA. The application included two diversion alternatives, (1) to divert water at Nimbus Dam through the FSC to San Joaquin County, and (2) to divert water from the South Fork of the American River and convey it through two planned reservoirs facilities to the FSC and then to San Joaquin County. Over the next 10 years, the development and construction of planned water conveyance and storage facilities, including the Auburn Dam, the Countyline and Clay Station Reservoirs, and the extension of the FSC into San Joaquin County were never completed.

In December 2001, the county appealed to the SWRCB for an extension in processing of Application 29657 and acknowledged that the county may amend the original application to move a point of diversion from the American River to the Sacramento River to coincide with the FRWP diversion at Freeport. By moving a point of diversion from the American River to the Sacramento River at Freeport, there is a potential that the county could divert water in wet years to San Joaquin County through the use of FRWP pipeline facilities. It is anticipated that in wet years, with a December to June diversion period, the county could receive between 30,000 and 60,000 af of water to meet future supply needs for conjunctive use and groundwater banking projects in the county. Other wet-year

supply to the county could potentially be developed through additional diversion, sales, exchanges, transfers, and partnerships.

This project is in the very early planning stages. No specific details have been identified at this time. Three general project concepts have been discussed. These concepts are outlined below.

Project Concepts

Preliminary concepts for the Freeport Interconnect Project include the development of various regulatory storage and conveyance facility options.

Concept A: Regulating Storage Reservoir with Conveyance to Local Conjunctive Use Facilities. From the terminus of the FSCC, the installation of a pipeline, pumping plant, inlet structure, and dam facility to wheel water from the FSCC, prior to going into the Mokelumne Aqueducts, south approximately 5 miles to the proposed Duck Creek Reservoir. This reservoir with a potential storage capacity of up to 200,000 af would act to store and regulate flows through the Bellota Weir and into the Calaveras River and Mormon Slough to supply water to local groundwater banking and conjunctive use projects within the county.

Concept B: Pipeline Turnouts with Conveyance to Local Conjunctive Use Facilities. Preceding the terminus of the FSCC, the installation of pipeline facilities to wheel water from the FSCC before it enters the Mokelumne Aqueducts, including a series of pipeline turnout structures located near local creeks and/or rivers including Dry Creek, Bear Creek, Duck Creek, Mokelumne River, and/or Calaveras River to supply water directly to local groundwater banking and conjunctive use projects within the county.

Concept C: Direct Delivery to Local Cities and Conjunctive Use Facilities. The installation of pipeline facilities to convey water from the terminus of the FSCC or the Mokelumne Aqueducts for direct delivery to city water treatment facilities, groundwater banking projects (including in-lieu, direct recharge, injection), or other conjunctive use facilities within the County.

South Sacramento Corridor Phase 2 Project

The Sacramento Regional Transit District is proposing to extend the South Line light rail system into the southern Sacramento region. Currently, the system is being expanded into the City of Folsom and into south Sacramento with the construction of South Line Phase 1, a 6.3-mile extension to Meadowview Road. The South Line Phase 1 extension is scheduled to open for service by September 2003. The South Sacramento Corridor Phase 2 Project would accommodate transportation needs associated with population and employment growth in the congested south corridor area by increasing transit capacity and providing faster, more convenient access throughout the Sacramento metropolitan region.

The alignment of portions of this proposed light rail extension and certain segments of the FRWP pipeline alignments could be located within the same general corridor. Construction may occur within the same general timeframe, depending on how these projects proceed through the environmental review and engineering design phases.

Interstate 5/Cosumnes River Boulevard Interchange and Extension

The City of Sacramento, in conjunction with Caltrans and the FHWA, is proposing to construct the I-5/Cosumnes River Boulevard interchange in the southwest portion of the city. The project includes extending Cosumnes River Boulevard from its current westerly terminus at Franklin Boulevard to I-5 and possibly farther west to Freeport Boulevard and the currently unincorporated Town of Freeport. The primary purpose of the project is provide an east-west connector between I-5 and SR 99, which improves mobility within the southerly limits of the City of Sacramento. The secondary purpose of the project is to provide access to developable land adjacent to I-5, possibly affording economic development opportunities. The interchange project and roadway extension are needed because east-west roadways within the southern portion of the City of Sacramento are insufficient to meet traffic demand, and currently only limited access is available to the developable properties. The project is currently undergoing environmental review, and a draft EIR/EIS is anticipated to be circulated in early 2004.

The preferred alignment of the proposed I-5/Cosumnes River Boulevard extension and certain segments of the FRWP pipeline could be located within the same general corridor. Construction may occur within the same general timeframe, depending on how these projects proceed through the environmental review and engineering design phases.

Lower Northwest Interceptor Project

The SRCSD is proposing a 20-mile-long pipeline and related facilities to convey wastewater from the existing Natomas Pump Station in northwestern Sacramento County to the SRWTTP in southern Sacramento County. The alignment of portions of the interceptor project and the FRWP facilities could be located within the same general corridor, depending on the alternatives selected. Construction may occur within the same general timeframe, depending on how these projects proceed through the environmental review and engineering design phases.

South Sacramento Streams Group Flood Control Project

The Corps and SAFCA are in the process of increasing flood protection to the south Sacramento County area by modifying existing levees or channels and constructing new levees at the SRWWTP and along portions of Morrison, Elder, Union House, and Florin Creeks, and retrofitting bridges on these creeks. Construction on these improvements is beginning and most of the work will be completed before the scheduled completion of the FRWP alternatives.

Sacramento Regional Wastewater Treatment Plant Regional 2020 Master Plan

The Master Plan, proposed by the SRCSD, provides a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth and to meet existing and anticipated regulatory requirements through the year 2020. The Master Plan addresses both public health and environmental protection issues while ensuring reliable service at affordable rates for SRCSD customers.

CALFED Bay-Delta Program

The CALFED Bay-Delta Program (CALFED) involves collaboration between state and federal agencies and stakeholders from key interest sectors created to address and resolve resource management issues in the Bay-Delta system. The mission of CALFED is to develop and implement a comprehensive plan that addresses resource problems in the Bay-Delta estuary related to fish and wildlife, water supply reliability, natural disasters, and water quality. The CALFED Record of Decision (ROD) was signed in late 2000. The ROD directs that a number of specific studies be implemented to address identified resource management issues. Several of these studies include feasibility studies of major water resources projects and programs that could interact cumulatively with the FRWP and other cumulative actions assumed and included in the CALSIM II modeling. These potential projects include:

- Sites Reservoir, a study of a major water supply storage reservoir in northern California;
- Shasta Lake enlargement, a study to explore the expansion of the lake to increase yield;
- In-Delta storage options, which is examining the potential for water storage on islands in the Delta (this project is essentially identical to the Delta Wetlands Project that recently obtained water rights for storage on Delta islands);
- San Luis Reservoir Low Point Improvement Project, which is exploring alternatives for addressing water quality problems in the reservoir during periods of low storage;

- South Delta Improvements Program, which involves developing a project and alternatives that would allow increased exports from the Delta while minimizing effects on water quality, fisheries, and water levels in the south Delta;
- SWP/CVP Intertie, which would involve developing a new pipeline connection between DWR's California Aqueduct and the CVP's Delta-Mendota Canal to improve operational flexibility for both the CVP and the SWP; and
- Los Vaqueros Reservoir Expansion Project, which is exploring the benefits and opportunities associated with expanding the Los Vaqueros Reservoir;
- Upper San Joaquin River Storage, which is studying the potential to increase storage capacity by raising Friant Dam or a similar storage program;
- Environmental Water Account, which is intended to acquire water assets and use them to buffer water supplies, especially in dry years;
- Bay Area Water Quality and Supply Reliability Program, which is intended to develop and coordinate regional blending and exchange concepts that can improve water quality and water supply reliability for several Bay Area water agencies (including EBMUD);
- Old River and Rock Slough Water Quality Improvement Projects (Veale/Byron Tract Drainage Reduction), which are intended to minimize salinity and other constituents of concern in drinking water by relocating or reducing agricultural drainage in the south Delta to improve drinking water quality for CCWD;
- Ecosystem Restoration Program, which involves extensive habitat restoration throughout the Sacramento and San Joaquin Valleys.

Each of these programs is in the very early planning and feasibility stages. They have not been adopted in any planning document or official plan beyond a highly programmatic environmental document. No firm description of these projects and programs is available, and many do not have a schedule for environmental compliance or project implementation. It is highly unlikely that all of these projects will move forward into the implementation stage. In addition, those that are ultimately implemented likely will be staged over a period of several years. It is therefore speculative to include a discussion of these projects and programs in this analysis. However, because of the inherently interrelated nature of major water resources programs in northern California, they are included in this qualitative analysis.

There are other actions and programs being evaluated and implemented by CALFED and CALFED agencies that could conceivably contribute to cumulative impacts. However, these are also relatively undefined at this time, and it would be speculative to attempt to include these other programs in a cumulative impact analysis.

Aquatic Resources

As indicated above and detailed in the respective resource chapters, the FRWP alternatives have little potential to contribute to any significant cumulative impacts. Overall, contract water withdrawals cumulatively have the potential to affect water availability for consumptive uses or instream beneficial uses throughout the Central Valley river system. The potential significant cumulative effects within the regional area could include the following:

- changes in Delta outflow,
- changes in reservoir levels and carryover storage,
- changes in water quality,
- impacts on sensitive species, and
- changes in water supply.

Reclamation, along with the State of California, is obligated to meet specific Delta outflow requirements. Implementation of the FRWP would not have a substantial effect on Delta outflows and would not contribute to any cumulative impacts. Most of the projects described above would substantially increase water availability in the CVP and SWP system. It is possible that instream flows in affected streams would also be increased.

The cumulative effects of the FRWP alternatives in combination with implementation of other potential future projects conceivably could substantially increase the amount of water available to the CVP and SWP. Such increases would completely offset any minor reductions in water supplies that may result from the FRWP alternatives.

Implementation of the FRWP alternatives in combination with implementation of the 2020 Master Plan for the SRWWTP could result in a minor degradation in water quality downstream when viewed in isolation because of increased wastewater flows projected by the master plan, together with minor infrequent decreases in Sacramento River flows caused by the FRWP alternatives. These effects would be very minor, and all instream flow and water quality criteria would continue to be met. In addition, several of the projects discussed above could result in improved water quality throughout the system and particularly within the Delta. These projects would generally result in increased flows into the Delta, increased exports from the Delta for water supply purposes, and increased Delta outflows for environmental and water quality purposes. These improvements are expected to greatly outweigh any minor decreases in water quality. In particular, the Rock Slough and Old River Water Quality Improvement Projects would substantially improve water quality for CCWD.

Use of available FRWP capacity by others, such as San Joaquin County, would result in increased diversions and additional impacts likely similar in type and relative magnitude to those discussed for the FRWP alternatives in Chapters 3–

17 of this EIR/EIS. Because no specific proposal has been made, it is not possible to discuss potential cumulative impacts in any greater detail.

The CALFED Bay-Delta Program includes specific objectives to restore and protect sensitive species such as winter-run chinook salmon and delta smelt. The programs include monitoring and enforcement actions that increase the potential for restoring these species to acceptable population levels. Implementation of the FRWP would not affect state or federal commitments to such restoration programs.

The current use of CVP water supplies is about 6.1 million af per year. The CVP's maximum contractual obligation to deliver water is about 6.6 million af per year. Therefore, the annual demand for CVP water under existing contracts could increase over time by more than 500,000 af. About 50% of this potential increase in contractual water deliveries by the CVP would be from the American River watershed. This increase in deliveries could decrease the reliability of CVP deliveries to the existing water users and reduce the water available to meet instream flow and temperature requirements in the lower American River. These increases in demands are addressed in Chapters 3, 4, and 5.

Terrestrial Resources

Many of the projects listed above would result in impacts on land-based resources. For example, Sites Reservoir (which has been under consideration for at least 50 years) would inundate hundreds of acres of habitats including annual grasslands, some of which support vernal pools, riparian woodlands, chaparral, and oak woodland. However, most of the projects are not located near the FRWP alternatives and habitats are not contiguous. Therefore the FRWP does not contribute to cumulative impacts on habitats and related resources except with those projects that are within reasonable proximity.

In addition, impacts related to construction and operation of water conveyance pipelines associated with the project alternatives would generally result in minor and temporary impacts. Because of the minor and temporary nature of most impacts, they are not considered additive to other ongoing regional impacts. Discussed below are those resource areas to which the FRWP could contribute to ongoing regional impacts.

Vegetation, Wetlands, and Wildlife

Implementation of the FRWP in combination with other local and regional projects, and general growth in the region would contribute to the cumulative loss of identified sensitive resources, including wetlands, riparian woodlands, and habitats for sensitive wildlife species. As described in Chapters 7 and 8, the effect of the FRWP alternatives on these resources is relatively minor and is likely not cumulatively considerable. Cumulative effects associated with

Alternative 6 on these resources are greater than those associated with Alternatives 2–5 because of the habitats that would be inundated by the enlarged Pardee Reservoir. Implementation of the mitigation measures recommended in Chapters 7 and 8 would reduce the FRWP's contributions to these cumulative impacts to a level well below the "cumulatively considerable" threshold.

Agriculture

Implementation of the FRWP in combination with other local and regional projects, and general growth in the region would contribute to the cumulative loss of prime agricultural lands. As noted in Chapter 11, the alternatives would result in an extremely small amount of impacts on prime farmland as a result of conversion when taken in the context of the amount of such farmland in the region. Alternative 6 would contribute less to this cumulative impact because of shorter pipelines and because there is no prime farmland within the enlarged Pardee Reservoir inundation zone. However, the loss of prime farmland is an issue of statewide concern. Therefore, the project alternatives would contribute a minor amount of loss to greater ongoing regional losses. The conversion of prime farmland is considered a significant cumulative impact that cannot be reduced to a less-than-significant level.

Cultural Resources

A number of cultural resources have been identified within the areas potentially affected by the project alternatives. Additionally, other as-yet-unknown resources may be discovered during project construction. Implementation of the FRWP alternatives would contribute to the cumulative loss of cultural (archeological and historic) resources in the region resulting from other projects and general growth within the region. Cumulative effects associated with Alternative 6 on these resources are greater than those associated with Alternatives 2–5 because of the inundation effects associated with the enlarged Pardee Reservoir. Implementation of the mitigation measures described in Chapter 17 would reduce FRWP's contribution to these cumulative impacts to a level below the "cumulatively considerable" threshold.

Construction-Related Effects

On a more site-specific level, implementation of the FRWP alternatives in combination with the Lower Northwest Interceptor and the Sacramento Regional Transit District South Sacramento Corridor Phase 2 projects could result in temporary "cumulative" construction-related effects. Although it is difficult to determine when each of these major projects will be constructed, they may be considered to have cumulative impacts because if they occur during the same timeframe, the magnitude of effects will be greater, and if they occur sequentially, the construction-related effects will be drawn out for an extended

period. These effects include issues typical of large-scale construction projects such as noise, dust, and traffic disruption.