Executive Summary

INTRODUCTION AND PURPOSE OF THE REVISED DRAFT EIR/EIS

The revised draft environmental impact report and environmental impact statement (REIR/EIS) for the Delta Wetlands Project has been prepared under the direction of the State Water Resources Control Board (SWRCB) and the U.S. Army Corps of Engineers (USACE) in accordance with the provisions of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

The environmental impacts of the Delta Wetlands Project were previously analyzed in the 1995 Delta Wetlands Project Draft Environmental Impact Report and Environmental Impact Statement (1995 DEIR/EIS) (Jones & Stokes Associates 1995). The primary purpose of the REIR/EIS document is to recirculate, pursuant to Section 15088.5 of the CEQA Guidelines and Section 1502.9 of the Council on Environmental Quality NEPA Regulations, those parts of the CEQA/NEPA analysis for the project for which significant information has been developed since the 1995 DEIR/EIS was published. The REIR/EIS presents available new information on water quality, levee stability, seepage, and natural gas facilities and transmission pipelines and considers the relevance of this information to the analysis of potential project effects presented in the 1995 DEIR/EIS. In addition, the REIR/EIS presents the results of updated simulations of Delta Wetlands Project diversion and discharge operations; the new simulations reflect changes made to the proposed project as a result of state and federal Endangered Species Act (ESA) consultation and operational agreements reached between Delta Wetlands and other interested parties. The REIR/EIS also includes an updated assessment of fisheries that evaluates how these changes to the proposed project affect the 1995 DEIR/EIS conclusions about potential project effects on fish species.

PROJECT DESCRIPTION AND HISTORY

Overview of Project Purpose and Features

Delta Wetlands proposes a water storage and habitat enhancement project on four islands in the Sacramento-San Joaquin Delta (Delta). The project would involve the following components:

- diverting and storing water on Bacon Island and Webb Tract ("reservoir islands") for later discharge for export or to meet outflow or environmental requirements;

- diverting water seasonally to create and enhance wetlands and to manage wildlife habitat on Bouldin Island and most of Holland Tract ("habitat islands"); and

- building recreational facilities for boating and hunting along the perimeter levees on all four islands.

To operate its project, Delta Wetlands would improve and strengthen levees on all four islands and would install additional siphons and water pumps on the perimeters of the reservoir islands. Delta Wetlands would operate the habitat islands under a habitat management plan (HMP) to compensate for impacts on, and promote the recovery of, state-listed threatened or endangered wildlife species and other special-status species, and to provide additional wetlands and wildlife habitat in the Delta.

The Delta Wetlands Project islands also could be used for interim storage of water being transferred through the Delta from sellers upstream to buyers served by Delta exports or buyers who would use the water to meet Bay-Delta estuary outflow or environmental requirements (water transfers). Another option would be to use the islands to temporarily store water owned by parties other than Delta Wetlands for later use to meet scheduled Bay-Delta estuary outflow or environmental requirements or for export (water banking). Because no proposals exist for these types of uses of the project island facilities, the CEQA/NEPA analysis considers the water supply yield and environmental impacts of the project based only on water stored under Delta Wetlands' own appropriative water right permits and later conveyed to Delta channels.

In the 1995 DEIR/EIS and the REIR/EIS, the Delta Wetlands Project is analyzed as a stand-alone water storage facility, operated independently of the State Water Project (SWP) and the Central Valley Project (CVP), and without regard to the specific entities to which the water could be sold. Although potential opportunities exist to operate the Delta Wetlands Project in conjunction with the SWP and CVP or in coordination with the CALFED Bay-Delta Program (CALFED), no proposals have been made for which the SWRCB and USACE could reasonably assess the environmental effects, so discussion of such arrangements remains speculative.

Regulatory Compliance History

Delta Wetlands has applied to the SWRCB, Division of Water Rights, for new appropriative water rights to divert water, store it on the project reservoir islands, and discharge it to Delta channels for export or to meet Bay-Delta estuary outflow or environmental requirements. Delta Wetlands also has applied to USACE for a permit under Section 404 of the Clean Water Act for the discharge of dredged or fill materials into waters of the United States and under Section 10 of the Rivers and Harbors Act of 1899 for other project activities in navigable waters. The project must comply with CEQA and NEPA because it requires these discretionary approvals. The 1995 DEIR/EIS was prepared at the direction of the SWRCB and USACE to assess the environmental effects of the proposed project pursuant to CEQA and NEPA requirements. The document was

distributed for public review and comment in September 1995. Numerous comment letters were received on the 1995 DEIR/EIS during the public comment period; many commenters expressed concerns about levee stability and seepage potential and project effects on fisheries and water quality.

While the 1995 DEIR/EIS was being prepared, the SWRCB and USACE prepared biological assessments that evaluated potential effects of the Delta Wetlands Project on fish and wildlife species listed or proposed for listing under the state and federal ESAs. The biological assessment for fish species concluded that the project could adversely affect several fish species that were listed or proposed for listing. The SWRCB initiated consultation with the California Department of Fish and Game (DFG) pursuant to the California ESA regarding project effects on delta smelt and winter-run chinook salmon. Pursuant to the federal ESA, USACE initiated formal consultation with the U.S. Fish and Wildlife Service (USFWS) regarding project effects on delta smelt and Sacramento splittail, and with the National Marine Fisheries Service (NMFS) regarding project effects on winter-run chinook salmon and steelhead.

As part of the consultation process, the SWRCB, USACE, USFWS, NMFS, DFG, and Delta Wetlands developed operating parameters for the Delta Wetlands Project, referred to as the Delta Wetlands "final operations criteria" (FOC), to protect these species. In May 1997, NMFS and USFWS issued no-jeopardy biological opinions that defined "reasonable and prudent measures" (RPMs) to be implemented by Delta Wetlands for protection of listed fish species. In August 1998, DFG issued a no-jeopardy biological opinion that specified additional RPMs for protection of fish species. The agencies' RPMs include the operating restrictions described in the FOC. The FOC and RPMs are now incorporated into the proposed Delta Wetlands Project description.

Also in 1997, the SWRCB convened a water right hearing to consider Delta Wetlands' petitions for new water rights and changes to existing water rights. Eighteen parties filed protests with the SWRCB against Delta Wetlands' water right applications. Delta Wetlands entered into stipulated agreements with five of these protestants. Four of the stipulated agreements affirm the seniority of the protesting parties' water rights and, to preclude interference with those senior water rights, outline general conditions under which the Delta Wetlands Project would operate. The fifth stipulated agreement precludes Delta Wetlands from interfering with the protesting party's ability to obtain water of a specified salinity level.

Delta Wetlands and several of the other parties presented evidence at the water right hearing on topics that included the potential effects of the Delta Wetlands Project on:

- levee stability;
- seepage to neighboring islands; and
- salinity and dissolved organic carbon (DOC) in Delta exports, and the resulting effects of increases in salinity and DOC on disinfection byproduct (DBP) formation at water treatment plants.

Additionally, Pacific Gas and Electric Company (PG&E) presented evidence regarding the potential for the Delta Wetlands Project to significantly affect PG&E's ability to maintain its gas line across Bacon Island. The East Bay Municipal Utility District (EBMUD) and DFG raised several issues about project effects on listed fish species. However, DFG's no-jeopardy biological opinion was issued subsequent to these proceedings, and the RPMs identified in the biological opinion, in addition to the FOC, adequately address these issues by providing for protection of listed fish species.

ISSUES ADDRESSED IN THE REVISED DRAFT EIR/EIS

The SWRCB and USACE have directed the preparation of the REIR/EIS to provide further clarification of the following issues:

- water quality, including project effects on DOC, trihalomethanes (THMs), and salinity;
- levee design and stability;
- seepage and proposed seepage control measures; and
- PG&E's gas line on Bacon Island.

In addition to these analyses, the REIR/EIS presents the results of updated simulations of Delta Wetlands Project discharge and diversion operations. It also includes an assessment of fisheries that updates the 1995 DEIR/EIS conclusions about potential project effects on fish species, and discusses new information on spring-run chinook salmon and fish predation at boat docks and other project facilities.

The REIR/EIS does not present a comprehensive analysis of the Delta Wetlands Project, but supplements the information presented in the 1995 DEIR/EIS in the following resource areas:

- water supply and operations,
- water quality,
- fisheries,
- levee stability and seepage, and
- natural gas facilities and transmission pipelines.

Together, the REIR/EIS and the 1995 DEIR/EIS provide the complete draft EIR/EIS analysis of potential environmental effects of the Delta Wetlands Project in compliance with CEQA and NEPA.

PROJECT ALTERNATIVES

The 1995 DEIR/EIS analyzed three project alternatives and a No-Project Alternative in an equal level of detail. The No-Project Alternative consists of intensified agricultural production on all four Delta Wetlands Project islands. Alternatives 1 and 2 both represent Delta Wetlands' proposed project, which consists of water storage on two reservoir islands and implementation of an HMP on two habitat islands, but these alternatives offer two different scenarios for the discharge of stored water. Under Alternative 3, all four Delta Wetlands Project islands would be used as reservoirs and limited compensation wetland habitat would be provided on Bouldin Island.

Alternative 2, with a higher amount of discharge pumping than Alternative 1, would have the maximum effect on fisheries associated with the proposed project. Alternative 2 was therefore used to represent the proposed project in the biological assessment for fish species (see Appendix F2 of the 1995 DEIR/EIS). The terms and conditions of the DFG, USFWS, and NMFS biological opinions are based on this alternative.

The REIR/EIS analysis has been performed to:

- confirm the results of the 1995 DEIR/EIS analysis,
- provide revised impact assessments,
- present new or revised mitigation measures where necessary, and
- indicate where mitigation measures recommended in the 1995 DEIR/EIS have been superseded by the FOC and RPMs.

Generally, the REIR/EIS evaluates the proposed project as represented by Alternative 2 (as modified by incorporation of the FOC, RPMs, and stipulated agreements) and discusses qualitatively how this assessment relates to evaluation of the other alternatives.

SUMMARY OF EVALUATIONS PRESENTED IN THE REVISED DRAFT EIR/EIS

Water Supply and Operations

The water supply and operations chapter (Chapter 3) provides information on the potential range of Delta Wetlands Project diversions and discharges based on the most current project description and on current assumptions for modeling Delta water supply, current regulatory standards, and an updated baseline water budget. Average monthly diversion, storage, and discharge values are reported from results of simulations performed using the Delta Standards and Operations Simulation (DeltaSOS) model. The results show that with the restrictions on project operations

specified in the FOC and RPMs, opportunities for project diversions and discharges would be reduced compared with the results shown in the 1995 DEIR/EIS. Effects on consumptive use would be less than significant, as reported in the 1995 DEIR/EIS.

The results of simulations of daily Delta Wetlands Project operations are also presented. In comparison with the results of the monthly simulations, the results of the daily simulations show opportunities for diversion and discharge, and some constraints on diversions and discharge, that exist when project operations are modified at a daily time step in response to Delta conditions.

Water Quality

The evaluation of water quality (Chapter 4) provides new simulation results of project effects on salinity (electrical conductivity [EC], chloride [Cl^-], and bromide [Br^-]), DOC, and THMs. The assessment considers data from recent measurements of Delta water quality variables, new laboratory data on DOC loading from peat soil, and estimates of DOC loading provided during the water right hearing. The significance threshold for THM effects has been modified to reflect the more stringent rules for DBPs, including THMs, that the U.S. Environmental Protection Agency (EPA) adopted after the 1995 DEIR/EIS was released. The evaluation found that with the changes in project operations resulting from incorporation of the FOC and RPMs into the project, the salinity effects on exports and at Chipps Island are now less than significant. Project impacts on salinity at Jersey Point and Emmaton and on DOC and THMs are significant, as reported in the 1995 DEIR/EIS. The same mitigation measures that were recommended in the 1995 DEIR/EIS are recommended in the REIR/EIS to reduce these impacts to a less-than-significant level. The lead agencies could adjust the recommended mitigation to meet any other requirement adopted in the project's permit terms.

Fisheries

The REIR/EIS fisheries assessment (Chapter 5) discusses changes in 1995 DEIR/EIS impact conclusions that have resulted from incorporation of the FOC and RPMs into the proposed project. It also discusses new listings of fish species and evaluates new information on spring-run chinook salmon occurrence provided by DFG, data on Mokelumne River spring-run chinook salmon provided by EBMUD, and new information regarding potential increases in predation with the construction of Delta Wetlands boat docks and other facilities. The evaluation found that incorporating the FOC and RPMs into the project reduces the significant impacts identified in the 1995 DEIR/EIS to a less-than-significant level; therefore, the mitigation recommended in the 1995 DEIR/EIS is no longer required.

Levee Stability and Seepage

A new geotechnical evaluation of the proposed levee design and seepage-control system was performed for the REIR/EIS. The results are reported in Appendix H and summarized in Chapter 6. The new evaluation identifies the following as significant impacts:

- a potential decrease in long-term levee stability on the Delta Wetlands reservoir islands and
- a potential increase in seepage on adjacent islands resulting from project operations.

Mitigation is proposed to reduce both impacts to a less-than-significant level. In addition, the following impacts are identified as less than significant:

- a potential decrease in levee stability on the project islands during or immediately after project construction,
- potential property damage resulting from levee failure, and
- cumulative effects on Delta flood hazards.

Other impact conclusions in the 1995 DEIR/EIS have not changed.

Natural Gas Facilities and Transmission Pipelines

The evaluation of natural gas facilities and transmission pipelines addresses PG&E's concern that the proposed Delta Wetlands water storage operations could adversely affect PG&E's ability to use its easements, decrease the useful life of the pipeline, increase the threat of pipeline damage, and affect pipeline maintenance. The evaluation of new information in the REIR/EIS identifies the following new significant impacts:

- an increased risk of pipeline leak or rupture resulting from island inundation (for an inactive pipeline only),
- an increased risk of pipeline leak or rupture resulting from levee improvements, and
- potential interference with pipeline inspection procedures.

Mitigation is proposed to reduce these impacts to a less-than-significant level.

KNOWN AREAS OF CONTROVERSY

Several areas of controversy regarding potential Delta Wetlands Project effects were discussed in comments on the 1995 DEIR/EIS and were the subject of conflicting water right hearing testimony. Most of the issues that were related to project effects on protected fish species have since been resolved by incorporation into the project of the FOC and RPM measures described in the state and federal biological opinions. As described in the sections above, the REIR/EIS was prepared to present new information that has become available, since release of the 1995 DEIR/EIS, on the remaining controversial issues—project effects on DOC and THM formation, levee stability, seepage, and PG&E maintenance of gas lines. The following sections summarize the specific areas of controversy that remain with regard to these issues and, where appropriate, summarize discussions of these issues presented in the REIR/EIS.

Potential Project Effects on Dissolved Organic Carbon Levels in Delta Exports

There is much disagreement among experts regarding the amount of DOC loading to stored water that would occur under Delta Wetlands' proposed reservoir storage operations. Chapter 4 of the REIR/EIS:

- describes the range of DOC loading estimates that were presented in the 1995 DEIR/EIS,
- describes new data on Delta water quality collected since the 1995 DEIR/EIS was released, and
- reports the range of DOC loading estimates calculated from the results of laboratory experiments using flooded peat soil as well as those presented by expert witnesses in testimony at the SWRCB water right hearing.

Because substantial disagreement remains regarding the appropriate levels of DOC loading to use in estimates of Delta Wetlands Project effects, the analysis in Chapter 4 evaluates effects for a wide range of DOC loading estimates. The range encompasses the loading rates observed in Delta agricultural drainage and in field and laboratory studies of DOC loading from Delta island peat soil.

The mitigation presented in the 1995 DEIR/EIS and the REIR/EIS is designed to accommodate the uncertainty about DOC loading from the project islands; it consists of reducing and/or delaying project discharges to minimize effects on export DOC concentrations. Thus, the mitigation is designed to be effective regardless of the actual DOC loading rates observed under project implementation. The chapter describes how the proposed mitigation would be implemented to control Delta Wetlands Project effects on export DOC concentrations under extreme (worst-case) DOC loading conditions. It also discusses how the mitigation would be adjusted to meet any mitigation requirement specified in water right permit terms for the project.

Relationship of Dissolved Organic Carbon and Bromide in Exports to Disinfection Byproduct Concentrations in Treated Water

Commenters on the 1995 DEIR/EIS and parties to the water right hearing disputed the accuracy of the methods for determining the formation of DBPs, including THMs, as a function of export salinity (Br^-) and DOC concentration. They suggested that revised methods for predicting the relationship between DOC and salinity levels and the formation of THMs and other DBPs at municipal water treatment plants would yield a better estimate of project effects. Appendix G of the REIR/EIS describes the updated methods and discusses their shortcomings. The accuracy of these methods remains an area of controversy.

As described for DOC impacts in the previous section, the mitigation of impacts on THMs presented in the 1995 DEIR/EIS and the REIR/EIS consists of reducing and/or delaying project discharges to minimize effects on THM formation at treatment plants. This mitigation is designed to be effective regardless of the actual increases in Br^- and DOC concentrations observed under project implementation. Reductions and/or delays in discharges to export would control Delta Wetlands Project effects on export DOC concentrations and salinity to meet a mitigation requirement specified in the project's water right permit terms.

Appropriateness of the Significance Criteria Used in the CEQA/NEPA Impact Analysis for Water Quality

Several parties to the water right hearing and commenters on the 1995 DEIR/EIS questioned the adequacy of the significance thresholds used in the impact analysis for water quality, arguing that these thresholds would not ensure the protection of all beneficial uses, most notably municipal water uses. The challenges are based on the concern that natural variability differs among water quality constituents and that for certain constituents, any change may constitute an unacceptable degradation of resources that are already impaired.

This issue is addressed in the discussion of impact significance criteria in Chapter 4. The discussion explains that the significance criteria exceed the expectations of CEQA and NEPA:

- When regulatory standards exist for a given variable, the significance criteria are more restrictive than the established standards.

- In the case of variables for which no standards exist, the significance criteria encompass the range of natural variability, measurement errors, and modeling uncertainty.

Several commenters have not recognized the distinction between the CEQA/NEPA significance criteria and the mitigation requirements that the SWRCB would apply in water right permit terms. The CEQA/NEPA significance criteria are used to develop mitigation measures on a monthly time step in an evaluation based on monthly model results; in actual practice, the Delta Wetlands Project would be required to adjust operations each day in response to daily monitoring of actual

Delta conditions and the quality of water stored on the Delta Wetlands islands. The mitigation performance requirements used to trigger changes in project operations under the terms and conditions of a water right permit, therefore, may differ from the CEQA/NEPA significance criteria. As discussed in Chapter 4, the SWRCB has discretion in establishing the requirements used to condition the water right permits.

Potential for Increased Municipal Water Treatment Costs Resulting from Project Operations

Some commenters on the 1995 DEIR/EIS and parties to the water right hearing have argued that economic effects on treatment plant operators (i.e., increases in treatment costs) that could result from project-related increases in salinity and DOC concentrations should be considered significant impacts. This issue is discussed in the section on impact significance criteria in Chapter 4 and in that chapter's evaluation of project effects on THM formation.

The State CEQA Guidelines state that economic changes resulting from a project shall not be treated as significant effects on the environment except when the economic changes lead to environmental impacts. Similarly, NEPA requires discussion of economic effects only to the extent that they are interrelated with environmental impacts. CEQA and NEPA do not require a significance determination of the economic impacts on treatment plant operators. Potential effects on water treatment costs for downstream water users caused by Delta Wetlands operations are an economic issue outside the scope of this environmental analysis. However, the SWRCB may choose to establish a monitoring and compensation plan for these potential effects in water right terms and conditions.

Adequacy of the Proposed Levee Design for the Reservoir Islands

Several parties to the water right hearing and commenters on the 1995 DEIR/EIS questioned the adequacy of the proposed levee system and argued that an independent geotechnical evaluation should be performed to determine the stability of the proposed system under various stresses. The SWRCB and USACE directed that an independent analysis be performed and the results presented in the REIR/EIS. Appendix H presents the results of the analysis. These results and proposed mitigation are summarized in Chapter 6.

Effectiveness of the Proposed Interceptor Well System for Controlling Seepage to Neighboring Islands, and Adequacy of the Seepage Monitoring Program

Several parties to the water right hearing and commenters on the 1995 DEIR/EIS have argued that the proposed seepage-control system and seepage monitoring program would not adequately protect neighboring islands from seepage effects from flooded project reservoirs. These effects were

simulated in the geotechnical evaluation performed for the REIR/EIS. The results, including proposed mitigation, are presented in Appendix H and Chapter 6.

Significance Criteria for the Evaluation of Effects on Levee Stability and Regulatory Standards to Be Applied to the Delta Wetlands Project Levees

Parties to the water right hearing have argued that the lead agencies should identify the levee standards, such as factors of safety (FSs), that would be applied to the Delta Wetlands Project's final levee design. This issue is addressed in Chapter 6 of the REIR/EIS. FSs are only one element used to regulate levees and dams; other design considerations are also used. USACE has published standards and guidelines for federal and local levees in the Delta; the California Department of Water Resources (DWR) has published guidelines for local levee rehabilitation in the Delta, and the Division of Safety of Dams (DSOD) establishes standards for dams.

The purpose of the CEQA/NEPA impact assessment is to determine the difference in levee stability between existing conditions and with-project conditions. The relative change in the FSs between the project and existing conditions is used as the basis for evaluating the impact of the proposed project. Because the analysis evaluates the change in levee conditions, a given FS standard cannot be used to determine the significance of the change. However, these standards will be considered during project approval and final design.

The lead agencies can choose to adopt a given standard to be applied to the final levee design for the Delta Wetlands islands. In the terms and conditions of project approval, the lead agencies may include standards or guidelines for the reservoir island levees that are more conservative than those proposed by Delta Wetlands. If the levees are determined to be "dams" as defined by the California Water Code (Sections 6002 through 6008), Delta Wetlands would be required to meet DSOD's standards and design review requirements. The determination of which standards apply to the project levees will depend on the final project design.

Effects on Pacific Gas and Electric Company's Ability to Use Its Bacon Island Easements, Provide Uninterrupted Gas Service, and Maintain Its Pipelines

During the Delta Wetlands water right hearing, PG&E presented testimony regarding its easements and natural gas pipelines that cross Bacon Island. The testimony focused on the ways in which proposed Delta Wetlands water storage operations could adversely affect PG&E's ability to use its easements, decrease the useful life of the pipeline, increase the threat of pipeline damage, and affect pipeline maintenance.

The future use of PG&E's easement is a private property right dispute that will be resolved independent of the SWRCB and USACE approval process; it is not addressed in the CEQA/NEPA

evaluation. Issues related to the operation and maintenance of the pipeline on Bacon Island and the possibility of impacts on regional natural gas service are considered potential environmental effects. The REIR/EIS updates and supplements the discussions of these Bacon Island pipeline issues presented in the 1995 DEIR/EIS.

Viability of the Project Given the Lack of Identified Purchasers of Delta Wetlands Water

Several commenters on the 1995 DEIR/EIS and parties to the water right hearing have questioned the viability of the proposed project, arguing that without identified purchasers of project water, the proposed project is financially infeasible and, therefore, should not be approved by the lead agencies.

Identification of beneficial uses of project water and financial feasibility of the project are water right and public interest issues that are addressed through the SWRCB's water right hearing process and USACE's public interest review. These issues are beyond the scope of CEQA and NEPA requirements and the EIR/EIS process, and are not addressed in the REIR/EIS or the 1995 DEIR/EIS. The SWRCB, during its water right decision process, and USACE, during its public interest review, will consider the analyses of significant environmental effects presented in the 1995 DEIR/EIS and the REIR/EIS.

PUBLIC REVIEW PROCESS FOR THE REVISED DRAFT EIR/EIS

The REIR/EIS serves as a full-disclosure document for the public to ensure that interested parties have an opportunity to express their views and concerns about the environmental effects of the Delta Wetlands Project, as presented in the updated analysis. The REIR/EIS is being circulated for review by interested agencies and the public. The lead agencies will receive comments on the REIR/EIS until July 31, 2000.

In publishing the REIR/EIS, the SWRCB and USACE are recirculating for public review and comment only the revised environmental analysis presented in the REIR/EIS. Those portions of the analysis addressed in the 1995 DEIR/EIS that are not reevaluated in the REIR/EIS are not being recirculated for additional public comment.

After the comments have been assembled and reviewed, the SWRCB and USACE will prepare a final EIR/EIS (FEIR/EIS). The FEIR/EIS will include responses on environmental issues that have been raised in comments on the REIR/EIS as well as in comments received previously on the 1995 DEIR/EIS.