Battle Creek Salmon and Steelhead Restoration Project
Final Environmental Impact Statement/ Environmental Impact Report

Volume III: Responses to Comments

Prepared for:

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Cover

Background photograph: View of North Fork Battle Creek in the fall
Inset photographs, clockwise, starting from the top: Baldwin Creek entering the mainstem of Battle Creek; migrating Chinook salmon; springs near Eagle Canyon Diversion Dam; steelhead pair among spawning gravels; Coleman Diversion Dam and Canal
(Background photograph taken by Kathleen Bishop with the Battle Creek Watershed Conservancy)

Tabs

Background photograph: View of North Fork Battle Creek in the spring
Inset photograph: View of South Fork Battle Creek upstream of Inskip Diversion Dam
(Background photograph taken by Kathleen Bishop with the Battle Creek Watershed Conservancy)

Table of Contents

Volume III, Responses to Comments

Volume I, the report, and Volume II, the appendices, are bound separately.

Tables

Page

Acronyms and Abbreviations

AADT	annual average daily traffic
ACHP	Advisory Council on Historic Preservation
ACID	Anderson-Cottonwood Irrigation District
Adaptive Management Plan	Battle Creek Salmon and Steelhead Restoration Project Adaptive Management Plan
ADT	Average Daily Trip
af	acre-feet
af/yr	acre-feet per year
AFRP	Anadromous Fish Restoration Program
AMF	Adaptive Management Fund
AMP	Adaptive Management Plan
AMTT	adaptive management technical team
APE	area of potential effect
APWRA	Altamont Pass Wind Resource Area
ASIP	Action Specific Implementation Plan
BA	biological assessment
Basin Plan	Central Valley Regional Water Quality Control Board's Region 5A/5B (Sacramento and San Joaquin River Basins) Basin Plan
Bay-Delta	San Francisco Bay/Sacramento–San Joaquin Delta
BCWC	Battle Creek Watershed Conservancy
BCWG	Battle Creek Working Group
BLM	U.S. Department of the Interior, Bureau of Land Management
BMPs	best management practices
BO	biological opinion
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards

CalEPA	California Environmental Protection Agency
CALFED Program	CALFED Bay-Delta Program
CALFED Programmatic EIS/EIR	CALFED Bay-Delta Program Final Programmatic EIS/EIR
CalPX	California Power Exchange
Caltrans	California Department of Transportation
CAMP	Comprehensive Assessment Monitoring Program
CARB	California Air Resources Board
CBDA	California Bay-Delta Authority
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CDP	census designated places
CEC	California Energy Commission
cents/kWh	cents per kilowatt hour
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHRC	California Hydropower Reform Coalition
CIWMB	California Integrated Waste Management Board
CMARP	Comprehensive Monitoring, Assessment, and Research Program
CMP	corrugated metal pipe
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNFH	Coleman National Fish Hatchery
CNPS	California Native Plant Society
CO	carbon monoxide
Coleman Science Panel	Coleman National Fish Hatchery Science Panel

Communications Protocol	Communications Protocol for Preparing NEPA/CEQA Documents, the FERC License Amendment Application, and Other Related Documents for the Battle Creek Salmon and Steelhead Restoration Project, Battle Creek Hydroelectric Project, FERC Project No. 1121
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CT	census tracts
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Regional Water Quality Control Board, Central Valley Region
CWA	Clean Water Act
dB	decibels
dBA	A-weighted sound pressure levels, or decibels
DDT	dichlorodiphenyltrichloroethane
Delta	Sacramento–San Joaquin River Delta
DFG	California Department of Fish and Game
DWR	California Department of Water Resources
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EIS/EIR	Environmental Impact Statement and Environmental Impact Report
EMT	emergency medical technician
EPA	U.S. Environmental Protection Agency
ERP	Ecosystem Restoration Program
ERPP	Ecosystem Restoration Program Plan
ESA	federal Endangered Species Act
ESU	evolutionarily significant unit
feet msl	feet above mean sea level
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration

FIRMs	Flood Insurance Rate Maps
FPA	Federal Power Act
FPPA	Farmland Protection Policy Act
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
GBCWWG	Greater Battle Creek Watershed Working Group
GCID	Glenn-Colusa Irrigation District
General Permit	National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activities
gpm	gallons per minute
GPS	global positioning system
GWh	Gigawatt hours
HAER	Historic American Engineering Record
Hydroelectric Project	Battle Creek Hydroelectric Project
Hz	cycles per second
IFIM	Instream Flow Incremental Methodology
IHN	infectious hematopoietic necrosis
ISB	CBDA Independent Science Board
ISO	Independent System Operator
k.a.	thousand years ago
KRIS	Klamath Resource information System
kV	kilovolts
kW	kilowatts
kWh	kilowatt-hour
L_{dn}	day-night noise level
L_{eq}	equivalent sound level
L_{max}	maximum noise output level
LOP	Letter of Permission
m.a.	million years ago
MBTA	Migratory Bird Treaty Act
MLTF	Mount Lassen Trout Farm
MOA	memorandum of agreement
MOU	memorandum of understanding

MPR	market price referent
MSCS	Multi-Species Conservation Strategy
MSDS	material safety data sheets
msl	mean sea level
MW	megawatts
MWD	The Metropolitan Water District of Southern California
MWh	megawatt hours
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Community Conservation Plan
NCCPA	California Natural Community Conservation Planning Act
NCCPs	natural community conservation plans
NCPC	Northern California Power Company
NEIC	Northeast Information Center
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	notice of availability
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOD	Notice of Determination
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPV	net-present value
NR	natural resources and recreation zone
NRHP	National Register of Historic Places
NTUs	nephelometric turbidity units
OCAP	Operating Criteria and Plan
OSHA	Occupational Safety and Health Administration
p.u.	power units

PCBs	polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
PHABSIM	Physical Habitat Simulation
PIT	passive integrated transponder
PL	Public Law
PM10	particulate matter 10 microns in mean diameter or less
PM2.5	particulate matter 2.5 microns in mean diameter or less
PMT	Battle Creek Project Management Team
PPE	personal protective equipment
ppm	parts per million
ppv	peak particle velocity
PRC	Public Resources Code
Programmatic NCCP Determination	DFG's Natural Community Conservation Planning Act Approval of the CALFED Bay-Delta Program Multiple Species Conservation Strategy
psi	pounds per square inch
Qal	Quaternary Alluvium
Qb1	Quaternary Basalt Unit 1
Qb2	Quaternary Basalt Unit 2
Qb3	Quaternary Basalt Unit 3
Qc	Quaternary Colluvium
QCIP	quality control and inspection program
QF	Qualifying Facility
Qrs	Quaternary Reservoir Sediment
RBDD	Red Bluff Diversion Dam
RCC	roller-compacted concrete
Reclamation	U.S. Department of Interior, Bureau of Reclamation
Restoration Project	Battle Salmon and Steelhead Restoration Project
Restoration Project ASIP	Battle Creek Salmon and Steelhead Restoration Project Draft Action Specific Implementation Plan
RM	River Mile
RMR	reliability must run
ROD	Record of Decision

ROG	reactive organic gases
RPS	Renewable Portfolio Standards
RWQCB	Regional Water Quality Control Board
SB	California Senate Bill
SCAQMD	Shasta County Air Quality Management District
SEL	sound exposure level
SGPWRA	San Gorgonio Pass Wind Resource Area
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SNTEMP	stream network temperature model
SO_2	sulfur dioxide
SOP	specific operating procedures
SPCP	Spill Prevention and Countermeasure Plan
SR	State Route
Standards	Reclamation Safety and Health Standards
State Water Board	California State Water Resources Control Board
Summary Report	Biological Survey Summary Report for the Battle Creek Salmon and Steelhead Restoration Project
SVAB	Sacramento Valley Air Basin
SWP	State Water Project
SWPPP	stormwater pollution prevention plan
TAC	Technical Advisory Committee
TCAPCD	Tehama County Air Pollution Control District
TCCA	Tehama-Colusa Canal Authority
TCMs	traffic control measures
TNC	The Nature Conservancy
tpd	tons per day
TPWRA	Tehachapi Pass Wind Resource Area
TPZ	timber preserve zone
TRP	technical review panel
TRP Report	Technical Review Panel Report for the Battle Creek Salmon and Steelhead Restoration Project
TSS	total suspended solids
Ttd	Unit D of the Tuscan formation

UBC	Uniform Building Code
USBM	U.S. Department of this Interior, Bureau of Mines
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VELB	valley elderberry longhorn beetle
WAF	Water Acquisition Fund
WUA	Weighted Usable Area
WY	Water Year
yd^3	cubic yards

Chapter 1
Introduction

Comments on the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and the Draft Supplemental EIS/Revised EIR for the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project) are presented in this volume (Volume III) of this Final EIS/EIR. Comments on the Draft EIS/EIR consist of written comments received during the public review period (July 18–October 16, 2003), and oral comments received at the public hearing in Manton, California, on August 27, 2003. Comments on the Draft Supplemental EIS/Revised EIR are written comments submitted during the public review period (March 1, 2005–April 29, 2005). In addition, the reader should refer to the section entitled Overview of the Revisions to the Draft EIS/EIR in this chapter for a summary of changes that have been made from the Draft EIS/EIR to the Final EIS/EIR.

Review and Project Selection Process

Bureau of Reclamation

The U.S. Department of Interior, Bureau of Reclamation (Reclamation), has completed or will complete the following steps to comply with the National Environmental Policy Act (NEPA) recommendations and to implement the Restoration Project. Reclamation has filed the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR with the Environmental Protection Agency (EPA) and published two separate notices of availability (NOAs), describing the availability of these documents for public review, in the *Federal Register*. A notice of public hearing for the 2003 Draft EIS/EIR was published in the *Federal Register* concurrently with the NOA publication for this document, and a public hearing was held following publication of the public hearing notice.

Public comments received during the public comment periods and at the public hearing for the Draft EIS/EIR were considered and responded to during the preparation of the Final EIS/EIR. Responses to these comments and changes to the Draft EIS/EIR in response to the comments are included in the Final EIS/EIR.

The Final EIS/EIR will be filed with the EPA, and an NOA will be published in the *Federal Register* announcing the availability of the Final EIS/EIR. After a minimum 30-day waiting period, Reclamation will issue a Record of Decision

(ROD) stating the decision and describing the alternatives considered, the environmentally preferable alternative, the factors considered with respect to the alternatives, environmental commitments and mitigation measures to be applied to the action, any monitoring and enforcement program to be established, any significant comments received on the Final EIS/EIR, and Reclamation's response.

State Water Resources Control Board

To certify the Final EIS/EIR, the California State Water Resources Control Board (State Water Board) and Reclamation must find that:

- the Final EIS/EIR has been completed in compliance with the California Environmental Quality Act (CEQA) and
- the Final EIS/EIR was presented to the decision-making body of the lead agency, and the decision-making body reviewed and considered the information contained in the Final EIS/EIR before selecting a project (State CEQA Guidelines, Section 15090).

After the State Water Board certifies the Final EIS/EIR, it will make the final decision regarding which project alternative will be selected for implementation, adopt findings of fact regarding the significant effects identified in the Final EIS/EIR (State CEQA Guidelines Section 15091), and adopt a statement of overriding considerations that identifies the specific benefits of the selected alternative that would outweigh its significant and unavoidable impacts (State CEQA Guidelines Section 15093). The findings and the statement of overriding considerations must be based on substantial (i.e., factual) information in the record. The State Water Board must also adopt a mitigation monitoring or reporting program that will ensure that the mitigation measures identified in the findings are implemented.

The State Water Board will file a notice of determination (NOD) with the State Clearinghouse once it has approved the selected alternative. Filing the NOD and the payment of California Department of Fish and Game (DFG) filing fees begin a 30-day statute of limitations for litigation over the adequacy of the Final EIS/EIR.

Public Involvement during Preparation of the Final Environmental Impact Statement/ Environmental Impact Report

Draft Environmental Impact Statement/ Environmental Impact Report

The public comment period for the Draft EIS/EIR began July 18, 2003, with an announcement of the availability of the Draft EIS/EIR. The formal public comment period closed October 16, 2003. On August 27, 2003, a public hearing on the Draft EIS/EIR was held for the community in Manton, California. About 50 members of the public attended. Both oral and written comments were received during the public hearing.

Copies of the Draft EIS/EIR were distributed to federal and state agencies, local governments, elected officials, and various nongovernmental groups. In addition, copies of the Draft EIS/EIR were sent to the Tehama County Library, the Shasta County Library, the Susanville Library, and the Natural Resources Library for the Department of the Interior in Washington, D.C., for public viewing. Notice was placed in the *Federal Register* in compliance with NEPA. Copies were provided to the State Clearinghouse for distribution to state agencies in compliance with CEQA. The Draft EIS/EIR was provided to others upon request at no cost.

In addition to responding to and publishing responses to comments received during the 90-day public review of the Draft EIS/EIR, Reclamation with participation from the Battle Creek Project Management Team (PMT) and Technical Team members conducted two public information workshops in Manton, California, for stakeholders and members of the public (July 23, 2003, and August 12, 2003). On March 15, 2004, Reclamation with participation from the PMT, Technical Team members, and The Nature Conservancy, and CHRC held a public meeting in Red Bluff, California, specifically to address public questions about the incremental benefits between the proposed Restoration Project and the Eight Dam Removal Alternative, which has been eliminated from further consideration (see Master Response B in Chapter 2 of this volume). Public comments have been encouraged at all public meetings on the Restoration Project.

Draft Supplemental Environmental Impact Statement/ Revised Environmental Impact Report

The public comment period for the Draft Supplemental EIS/Revised EIR began on March 1, 2005, with an announcement of the availability of the Draft Supplemental EIS/Revised EIR. The formal public comment period closed on April 29, 2005.

Copies of the Draft Supplemental EIS/Revised EIR were distributed to the public, interested parties, federal and state agencies, local governments, elected officials, and various nongovernmental groups. In addition, copies of the Draft Supplemental EIS/Revised EIR were sent to the Tehama County Library, the Shasta County Library, the Susanville Library, and the Natural Resources Library for the Department of the Interior in Washington, D.C., for public viewing. Notice was placed in the *Federal Register* in compliance with NEPA. Copies were provided to the State Clearinghouse for distribution to state agencies in compliance with CEQA. Pursuant to its issuance, the Draft Supplemental EIS/Revised EIR was provided to others upon their request.

Consideration of Recirculation

After the close of the public comment period for the Draft EIS/EIR, Reclamation and the State Water Board began responding to comments that had been received during public review. As a result of this process, and subsequent reviews that were performed outside the NEPA/CEQA process, it became evident that significant new information would need to be added to the Draft EIS/EIR. Therefore, Reclamation and the State Water Board recirculated portions of the Draft EIS/EIR for public comment in the Draft Supplemental EIS/Revised Draft EIR.

If significant new information is added to an EIS/EIR after public review, the lead agency is required to recirculate revisions to the document (State CEQA Guidelines, Section 15088.5, and Council on Environmental Quality (CEQ) NEPA Regulations 40 Code of Federal Regulations [CFR] 1502.9). *Significant new information* includes, for example, a new significant environmental impact or a substantial increase in the severity of an impact. New information is not considered significant unless the document is changed in a way that deprives the public of a meaningful opportunity to comment on a substantial adverse environmental effect of the project, or a feasible way to mitigate or avoid such an effect that the proponent has declined to implement. Another example of significant new information that would require recirculation is if the Draft EIS/EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

Responses to Comments

NEPA and CEQA regulations direct the lead agencies to respond to substantive public comments on a Draft EIS/EIR. All comments received during the comment periods are responded to in this Final EIS/EIR. The range of possible responses includes requiring specific mitigation measures, modifying alternatives, supplementing analyses, making factual corrections, and explaining why comments do not warrant further agency response. In cases where public response has been especially voluminous, the agency may summarize or consolidate similar comments, as long as all substantive issues are represented. This Final EIS/EIR contains Master Responses that respond to common concerns expressed about the Restoration Project, and responses to each individual comment on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR.

Overview of Revisions to the Draft Environmental Impact Statement/ Environmental Impact Report

In addition to responding to individual public comments on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR, a number of revisions were incorporated into the Draft EIS/EIR to create a more complete document for the Final EIS/EIR. Some of these revisions, as presented in Volume I (Report) and Volume II (Appendices) of this Final EIS/EIR, are listed and described below.

Volume I, Report

Chapter 1, Introduction, Organization, and Process

- **Relationship of the Restoration Project to the CALFED Bay-Delta Program (CALFED Program).** The Draft EIS/EIR provided a description of how this document would tier from the CALFED Programmatic EIS/EIR under the heading, Relationship of This Document to the CALFED Bay-Delta Program Final Environmental Impact Statement/Environmental Impact Report. This text was updated with more applicable text describing the relationship of the Restoration Project to the CALFED Program and the relationship of the Restoration Project EIS/EIR to the CALFED Programmatic EIS/EIR.

Chapter 2, Purpose and Need, Project Description, and Project Background

- **Geographic Scope.** A description of the geographic scope of the Restoration Project was added to the beginning of this chapter.

Chapter 3, Project Alternatives

- **Environmental Commitments.** General Environmental Protection Measures, listed in the introduction to Chapter 4 of the Draft EIS/EIR, were renamed Environmental Commitments and moved to Chapter 3 under the project description of the Five Dam Removal Alternative.
- **New Project Site Figures.** New figures were added to supplement the project description for the Five Dam Removal Alternative. These figures present the proposed construction areas at Restoration Project sites and provide information describing activities that would occur at each construction area. The new figures are presented in Appendix F of the Final EIS/EIR (see New Appendices below).
- **Construction Schedules.** Restoration Project construction schedules were updated to indicate that project construction would begin in 2006 and end in 2009.
- **Wildcat Diversion Dam and Canal.** The description of the activities to take place along the Wildcat Canal was updated to state that the entire length of the pipeline would be removed. All associated timber and metal work also would be removed.
- **Inskip Diversion Dam/South Powerhouse, Access Road Improvements.** The description of the proposed access road that would be used to access the Inskip Diversion Dam was modified in light of new information that allowed the construction footprint to be minimized. A discussion of the other alignments also considered, but eliminated, was added. In addition, the reference to piling spoils along the access road at the top of the plateau was removed.
- **Asbury Pump House and Diversion Dam.** The discussion of project elements for Asbury Pump House and Diversion Dam was expanded to include a more detailed description of the dam, releases from the dam, and a flow-gaging station located downstream.
- **Biological and Environmental Monitoring Fund.** A description of the Biological and Environmental Monitoring Fund, made available from Central Valley fishery restoration funding sources, has been included.
- **Alternatives Eliminated from Further Consideration.** A discussion of the Eight Dam Removal Alternative was added in this section. The discussion compares the Eight Dam Removal Alternative with the Five Dam Removal

Alternative and explains why the Eight Dam Removal Alternative was eliminated from further consideration.

Chapter 4, Affected Environment and Environmental Consequences

Section 4.1, Fish

- **Impact Assessment.** A new significant impact entitled "Increased risk of a serious or catastrophic fish disease spreading from Battle Creek to fish communities throughout the state and through stocking with Mount Lassen Trout Farm and Darrah Springs State Fish Hatchery fish" has been added to this section under all action alternatives.

Section 4.2, Botanical, Wetland, and Wildlife Resources

- **Impact Assessment.** The following new impacts have been added to Section 4.2.
  - A new significant impact entitled "Potential disturbance to valley elderberry longhorn beetle habitat," has been added to this section under the Five Dam Removal Alternative and the No Dam Removal Alternative.
  - A new significant impact entitled "Potential disturbance to nesting California black rails in emergent marsh," has been added to this section under all action alternatives.
  - A new less-than-significant impact entitled "Potential loss of woody riparian vegetation along PG&E canals" has been added to this section under all action alternatives.
  - A new less-than-significant impact entitled "Potential disturbance of annual grassland habitat" has been added to this section under all action alternatives.

- **Revised Mitigation Measures for Wildlife and Habitat Types.** The mitigation measures for special-status wildlife and Natural Community Conservation Plan (NCCP) habitat communities have been revised in Section 4.2, Botanical, Wetland, and Wildlife Resources, to reflect mitigation presented in the Draft Action Specific Implementation Plan (ASIP) (Jones & Stokes 2004).

- **Figure Revisions.** Figures of biological resources and waters of the United States identified in the project area (Figures 4.2-1 through 4.2-19) were moved from Section 4.2, Botanical, Wetland, and Wildlife Resources, to Appendix L, "Biological Resources Documented at Battle Creek Project Sites," and Appendix M, "Waters of the United States Documented at Battle Creek Project Sites," respectively (see New Appendices below).

Section 4.4, Water Quality

- **Impact Significance Criterion.** A new impact significance criterion, which identifies an impact as significant if implementing the Restoration Project would result in a deterioration of the biological integrity of surface waters, has been added to Section 4.4, Water Quality, of this Final EIS/EIR.
- **Impact Assessment.** The following impacts have been added to Section 4.4.
  - A new significant impact entitled "Impacts on beneficial uses of waters used at Mount Lassen Trout Farm" has been added to this section under all action alternatives.
  - A new significant impact entitled "Impacts on beneficial uses of California waters from the distribution of infected Mount Lassen Trout Farm fish" has been added to this section under all action alternatives.

Section 4.6, Land Use

- **Affected Environment.** A new discussion describing aquaculture as a form of agriculture has been added to this section.

Section 4.8, Aesthetics

- **Impact Assessment.** The following new impacts have been added to Section 4.8.
  - A new less-than-significant impact entitled "Potential reduction in scenic resources visible from canals caused by closure of PG&E canals" has been added to the discussion of impacts for each action alternative.
  - A new less-than-significant impact entitled "Temporarily reduced scenic resources along the Eagle Canyon Canal as a result of construction of Eagle Canyon Pipeline" has been added to the discussion of impacts under the Five Dam and No Dam Removal Alternatives to address the visual impacts associated with the construction of the Eagle Canyon pipeline at the Jeffcoat site.

Section 4.14, Recreation

- **Impact Assessment.** The less-than-significant impact entitled "Loss of a recreational fishery at Oasis Springs Lodge" has been added to Section 4.14 under the impact discussion for all action alternatives to address concerns regarding how implementation of the Restoration Project might affect recreational fishing at the Oasis Springs Lodge.

Section 4.15, Cultural Resources

- **Impact Assessment.** A new significant impact entitled "Potential impact on cultural resources at the Jeffcoat aquaculture facility" has been added to the discussion of impacts under the Five Dam and No Dam Removal Alternatives.

Section 4.16, Other NEPA Analyses

- **Summary of Effects.** The following effects have been modified or added to Section 4.16.

  - The existing effect entitled "Potential decrease of regional and local employment and income" has been modified and is now identified as "Potential socioeconomic risk to Mount Lassen Trout Farm (MLTF) fish marketing program" in the discussion of effects under all action alternatives. To minimize project-related effects on regional and local employment and income (specifically to MLTF facilities), these effects now refer to the mitigation measures associated with Impact 4.1-8 (see Section 4.1, Fish).
  - A new effect entitled "Potential construction-related loss in revenue at Oasis Springs Lodge" has been added to the discussion of effects under each action alternative.
  - A new effect entitled "Potential long-term loss in revenue at Oasis Springs Lodge" has been added to the discussion of effects under each all action alternative.

Chapter 5, Consultation and Coordination

- **Clarification of Additional Public Involvement.** Text has been added to the discussion under Public Review of the Draft Environmental Impact Statement/Environmental Impact Report to include ongoing public involvement in the development of the Final EIS/EIR, which has taken place since the Draft EIS/EIR was submitted for public review in July 2003.

Chapter 6, Related Projects

- Various related project descriptions have been updated with information that has become available since the Draft EIS/EIR was submitted for public review in July 2003. Projects with substantial new information are:

  - Coleman National Fish Hatchery;
  - Battle Creek Watershed Conservancy (BCWC);

- Monitoring of Adult and Juvenile Spring-Run and Winter-Run Chinook Salmon and Steelhead in Battle Creek;
- Butte, Deer, and Mill Creek Reference Watersheds;
- Red Bluff Diversion Dam Fish Passage Improvement Project; and
- Proposed Comprehensive Fisheries Management Plan for the Upper Sacramento River and Its Tributaries.

Chapter 7, Summary

- **Comparison of Alternatives.** The discussions comparing each action alternative with the Proposed Action have been reorganized by resource area, and new information regarding the differences between the alternatives has been included.

- **Environmentally Preferred/Superior Alternative.** The discussion has been updated to reflect that the Six Dam Removal Alternative is now the Environmentally Preferred/Superior Alternative.

- **Table 7-1, Summary of Impacts.** Table 7-1 has been modified to include all impact discussions and associated mitigation measures that were revised in the Final EIS/EIR. Table 7-1 also includes any new significant and less-than-significant impact discussions that have been added since preparation of the Draft EIS/EIR.

- **Table 7-2, Comparison of Benefits and Impacts Associated with Each Action Alternative.** Table 7-2 presents how the environmental impacts of the action alternatives differ. Only impacts that are different among the alternatives are listed in Table 7-2; those impacts that are shared by all alternatives are not listed in this table.

Volume II, Appendices

Revised Appendices

- **Methods Descriptions**. Descriptions of the methods used in the environmental analysis have been moved from Appendix G in the Draft EIS/EIR to the appropriate environmental resource sections in the Final EIS/EIR.
- **Appendix I, "Development and Assumptions of the Battle Creek Hydrology and Hydroelectric Power Model."** Appendix I of the Final EIS/EIR, "Development and Assumptions of the Battle Creek Hydrology and Hydroelectric Power Model," (Appendix K under the same title in the Draft EIS/EIR) has been modified to include a description of Battle Creek hydrology, diversion dams, and historical daily flow patterns to demonstrate

that the calculations in the monthly model are a reasonable approximation of future potential habitat conditions in each reach of Battle Creek.

- **Appendix J, "Results from Monthly Flow and Power Generation Model."** Flow and diversion tables have been altered to facilitate comparisons among the alternatives in Appendix J of the Final EIS/EIR, "Results from Monthly Flow and Power Generation Model" (Appendix L under the same title in the Draft EIS/EIR). Each table presents flows or diversions at a particular site for each alternative instead of presenting flows at every site for one alternative.
- **Appendix Q, "Fish and Wildlife Coordination Act Report."** The Draft Fish and Wildlife Coordination Act Report has been updated. The Final Fish and Wildlife Coordination Act Report is included in Appendix Q of this Final EIS/EIR.
- **Appendix R, "Water Temperature in the Battle Creek Restoration Area."** A description of the development of the Battle Creek SNTEMP model and a comparison of the SNTEMP model's results to those of a simpler water temperature model have been included in Appendix R of the Final EIS/EIR, "Water Temperature in the Battle Creek Restoration Area" (Appendix M under the same title in the Draft EIS/EIR).
- **Appendix O, "Special-Status Species Accounts."** Appendix O in the Final EIS/EIR, "Special-Status Species Accounts," (Appendix J in the Draft EIS/EIR, "Special-Status Wildlife Descriptions") has been modified to include a detailed description of the legal status, distribution, habitat association, and reasons for decline of special-status fish species.

New Appendices

- The following appendices have been added to this Final EIS/EIR.
  - **Appendix F, "Proposed Construction Areas at Restoration Project Sites."** Figures presenting the proposed construction areas at each project site have been included in the Final EIS/EIR as a new appendix, Appendix F, "Proposed Construction Areas at Restoration Project Sites."
  - **Appendix K, "Water Temperature and Aquatic Habitat in Battle Creek."** A new appendix, Appendix K, "Water Temperature and Aquatic Habitat in Battle Creek," has been added to the Final EIS/EIR and describes and compares optimal water temperature habitat for the restoration alternatives based on the results of the SNTEMP model.
  - **Appendix L, "Biological Resources Documented at Battle Creek Project Sites."** The figures in Section 4.2 that identify biological resources at each project site have been moved to a new appendix in the Final EIS/EIR, Appendix L, "Biological Resources Documented at Battle Creek Project Sites."
  - **Appendix M, "Waters of the United States Documented at Battle Creek Project Sites."** The figures in Section 4.2 that identify waters of

the United States at each project site have been moved to a new appendix in the Final EIS/EIR, Appendix M, "Waters of the United States Documented at Battle Creek Project Sites."

Chapter 2
Master Responses

Introduction

A review of the comments made on the Draft EIS/EIR revealed that some comments were made frequently, demonstrating a common concern among those submitting written comments and those speaking at the public hearing. In some cases, the array of similar comments about a particular topic provided more clarity about a particular issue than any single comment. To allow presentation of a response that addresses all aspects of these related comments, Master Responses have been prepared for those topics that were raised in a number of comments from agencies, interested groups, and members of the public. These Master Responses are intended to allow a well-integrated response that addresses all facets of a particular issue, in lieu of piecemeal responses to individual comments, which may not have portrayed the full complexity of the issue.

The use of a Master Response is in no way intended to minimize the importance of the individual comments. In fact, Master Responses are used as a way to highlight some of those issues that appeared to be of particular importance to those making the comments.

The Master Responses indicate where changes to the text of the Final EIS/EIR have been made. Section references for text changes reflect the location of the change in the Final EIS/EIR text.

Master Response A—Responding to Technical Review Panel Comments on the Restoration Project

In 1999, Reclamation, U.S. Fish and Wildlife Service (USFWS), DFG, National Marine Fisheries Service (NOAA Fisheries), and Pacific Gas and Electric Company (PG&E) signed a memorandum of understanding (MOU) to pursue a restoration project on Battle Creek (see Appendix A in Volume II of this Final EIS/EIR). During the development of the MOU, the agency signatories agreed to support the Restoration Project (see Chapter 2 in Volume I of this Final EIS/EIR under the section titled Development of a Memorandum of Understanding for more information). The details of this project are presented in the 1999 MOU and in Chapter 3 under the section titled Five Dam Removal Alternative in Volume I of this Final EIS/EIR.

In 1999, CALFED (now known as the California Bay-Delta Authority [CBDA]) approved $28 million for the Restoration Project (CALFED Project No. 1999-B01), which was the estimated cost of the project at the time. By 2003, it became apparent that additional funds would be needed to complete the Restoration Project, and an initial supplemental funding request was submitted to the CBDA, CALFED Ecosystem Restoration Program (ERP).

Technical Review Panel Evaluation of the Restoration Project

The initial supplemental funding request triggered the CALFED ERP, at the request of its technical experts, to form an independent technical review panel (TRP) to evaluate the Restoration Project. The TRP was composed of six technical experts (a riparian ecologist, a fisheries biologist, a geomorphologist, and three civil engineers). The TRP was tasked with providing a comprehensive evaluation of the technical merit of the Restoration Project and strengthening the restoration effort in the context of the MOU Alternative.

The panel summarized their results in the *Technical Review Panel Report for the Battle Creek Salmon and Steelhead Restoration Project* (TRP Report), dated September 2003 (Borcalli et al. 2003). The panel found that the general cost of the project elements under the MOU Alternative were reasonable, justified, and cost-effective; however, the panel identified several elements of the project that should be reexamined based on comments provided in the TRP Report, including fish counting design, estimation of mitigation costs, and the adequacy of funding for continued monitoring. The panel also presented several recommendations that would strengthen the effort to restore anadromous fish habitat in Battle Creek. The ERP selection panel reviewed the TRP Report and concurred with the TRP's comments.

As part of the TRP Report, the panel made several recommendations that would strengthen the restoration effort. These recommendations are listed below.

- Include funds for monitoring the intended responses of fish, channel geomorphology, water quality and temperature, and sediment dynamics as part of the Restoration Project.
- Strengthen the Adaptive Management Plan (AMP) and identify an explicit process for reviewing responses of salmon and sediment routing after dam removal.
- Include provisions for fish traps in the new ladders so that fish can be collected, examined, and marked.
- Design the fish ladders to include an alternative for insertion of an adult fish trap where possible.
- Include radio telemetry in the monitoring of adult fish passage to confirm that adults do not delay below ladders and consider using passive integrated transponder (PIT) tag technology as a long-term monitoring tool.
- Account for remote sensing locations and construction requirements (e.g., PIT tag sensors) in newly constructed fish ladders.
- Plan and schedule the Coleman Powerhouse tailrace barrier as an integral feature of the Restoration Project[1].

The ERP selection panel requested that the PMT address the TRP's comments in a response to the selection panel that explains how the PMT would modify project designs, planning and environmental documents, and implementation of the Restoration Project. The PMT was encouraged to address comments on monitoring and adaptive management, including modifying project features to enhance the ability to monitor fish. The selection panel also encouraged the PMT to explain how the following issues would be addressed.

- Consider a more complete decommissioning of the Battle Creek Hydroelectric Project (Hydroelectric Project) as a project alternative (see Master Response B: Removing Additional Dams in Battle Creek Not Identified by the Proposed Action).
- Reintroduce winter-run Chinook salmon to Battle Creek (see Master Response C: Revisions to the Draft AMP).
- Coordinate Coleman National Fish Hatchery Operations with restoration efforts (see Master Response D: Potential Effects of Coleman National Fish Hatchery Operations on Restoration Project Success).

PG&E's Coleman Powerhouse tailrace barrier was completed in fall 2004 as an action separate from the Restoration Project.

[1] PG&E's Coleman Powerhouse tailrace barrier was completed in fall 2004 as an action separate from the Restoration Project.

Responding to the Technical Review Panel Report

In response to the comments presented in the TRP Report, the PMT and the adaptive management technical and policy teams (AMTT/AMPT) prepared a series of responses to address the issues raised in the TRP Report. Responses to the TRP Report were submitted to the CBDA ERP selection panel between January and May 2004 and are summarized below.

- An additional alternative, the Eight Dam Removal Alternative, was analyzed in comparison with the Five Dam Removal Alternative outside the context of the environmental review process (refer to Master Response B for more information).
- To ensure a thorough and systematic review of the project design features, a review of the draft plans and specifications is scheduled for June through July 2005. The Federal Energy Regulatory Commission (FERC) will take part in this review.
- The PMT, AMTT, and AMPT recognize the need to prioritize the restoration of winter-run Chinook salmon. The need to address this target species and the need for a feasibility analysis were addressed in the CALFED Program ASIP for the Battle Creek Restoration Project.
- Design flaws or areas of improvement suggested by the TRP were considered, and changes to the facilities were made when possible with the concurrence of the fisheries agencies. The PMT, AMTT, and AMPT attempted to address the TRP's comments in a written response when no changes could be made to the proposed design.
- The AMP was substantially changed to reflect the comments of the TRP and to improve its usefulness as a long-term tool for successful monitoring and management of the Restoration Project. As an example, the AMP now recommends the use of radio tagging for fish passage monitoring.

Reclamation, on behalf of the PMT, AMTT, and AMPT, submitted the final response on the TRP report to the CALFED ERP in May 2004. For more information regarding the TRP's comments, visit the CBDA Documents page of the Restoration Project website at:

http://www.usbr.gov/mp/battlecreek/docs-cbda.html

In March 2005, Reclamation, on behalf of the PMT, submitted a final funding proposal to the CALFED ERP. The CALFED ERP Selection Panel is expected to develop a final funding recommendation in July 2005, and subsequently, a funding decision for the Restoration Project will be made at the CBDA meeting in August 2005.

Master Response B—Removing Additional Dams in Battle Creek Not Identified by the Proposed Action

Several comment letters received on the Draft EIS/EIR requested that Reclamation and the State Water Board consider removing more dams in Battle Creek than are identified by the Proposed Action (i.e., the Five Dam Removal Alternative). Some comment letters requested that the Six Dam Removal Alternative be considered for the Restoration Project, which would include the removal of Eagle Canyon Diversion Dam. Most comment letters related to this topic, however, requested that all eight dams below the natural fish barriers on Battle Creek be removed.

This master response summarizes the analysis conducted and the factors considered in the selection of dam removal alternatives for Battle Creek. This master response also identifies support that the Proposed Action has received from the owner/operator of the Hydroelectric Project, federal and state agencies, and the local community.

Factors Considered in the Selection of Dam Removal Alternatives

The Restoration Project presents an opportunity to reestablish prime salmon and steelhead habitat on Battle Creek, plus additional habitat on its tributaries, which would help preserve and enhance current salmonid populations within the Sacramento River system. Although one of the primary objectives of the Restoration Project is to restore habitat in Battle Creek for anadromous fish, another important objective is to minimize the loss of renewable hydroelectric power in the Hydroelectric Project (FERC Project No. 1121) (see the sections titled Purpose and Need and Project Objectives in Chapter 2 in Volume I of this Final EIS/EIR). To minimize the loss of hydroelectric power and maintain a viable Hydroelectric Project, it is necessary to allow PG&E diversion dams to continue to divert water from Battle Creek to some of its powerhouses[2].

The MOU signatories (including Reclamation, NOAA Fisheries, USFWS, DFG, and PG&E) decided, after a series of negotiations, which diversion dams should remain and which would be decommissioned on Battle Creek. A variety of factors were considered during the negotiation process. These factors included biological considerations associated with fish ladder and fish screen installation compared to dam removal at each site; the importance of maintaining a viable Hydroelectric Project; and each dam's contribution to the Hydroelectric Project. Each of these factors is described below.

[2] Pacific Gas & Electric Company (PG&E) is the owner and licensee of the Hydroelectric Project.

Biological Considerations

For those dams proposed to be left in place under the Five Dam Removal Alternative (i.e., North Battle Creek Feeder, Eagle Canyon, and Inskip Diversion Dams), some uncertainty exists as to whether the proposed new fish screens and ladders will provide fish passage equivalent to that provided by removing the dam. The EIS/EIR concludes that there will not be a significant difference in the population level response of salmon and steelhead as a result of passage impacts associated with retaining or removing a dam. The analysis is based on a population-level response rather than an individual level, consistent with the requirements of the Endangered Species Act. The general reason leaving a dam in place and adding the proposed fish screens and ladders is not expected to cause an adverse effect on the population level is that the dams in Battle Creek are small relative to the stream channel morphology, and the fish ladders and screens are large. More importantly, the fish screens and fish ladders meet or exceed the standards and criteria required for screens and ladders throughout the state of California. Similar installations of modern screens and/or ladders on streams have been granted approvals under the Endangered Species Act because the facilities will protect the species at the population level. Any problems that may arise with the fish screens or ladders would occur for a limited amount of time and would not affect the population as a whole.

Much research has gone into designing state-of-the-art fish passage facilities at each dam that would be left in place, and all fish ladder and fish screen designs proposed for the Restoration Project have been approved by the fishery agencies (i.e., DFG and NOAA Fisheries). As a result, the agencies have determined that removal of any of the other diversion dams not proposed under the Five Dam Removal Alternative would not represent a significant improvement to habitat and passage conditions for anadromous fish over those improvements predicted for the Five Dam Removal Alternative (California Department of Fish and Game 2004).

Although a stream reach may be considered passable without the dam in place, the conditions might be such that a fish ladder would make passage easier for anadromous fish. For example, the box canyon–like conditions in the area of Inskip Diversion Dam indicate that there could be the kind of steep, narrow, boulder-studded stream reach buried under the dam and diversion pool that would make passage more difficult without the dam than with a dam and fish ladder.

Maintaining a Viable, Renewable Hydroelectric Project

The Hydroelectric Project is operated in conjunction with other PG&E generating sources. Most importantly, the Hydroelectric Project helps to maintain the reliability of the local transmission system and has the capacity to support 20% of the electricity demand in the Battle Creek Area[3]. It is important to maintain a viable Hydroelectric Project so that PG&E's power-generating facilities on Battle Creek may continue to provide renewable hydroelectric power for the Battle Creek Area at a reasonable cost to its customers.

Implementing the Restoration Project, regardless of which action alternative is implemented, would result in a reduction of energy produced by the Hydroelectric Project and also would decrease the dependable capacity of the Hydroelectric Project. Battle Creek hydroelectric power is a low-cost, renewable, power-generating resource compared to other generation facilities that might substitute for it. According to California's Renewable Portfolio Standard mandate, replacement energy must come from another eligible renewable energy resource; however, other renewable energy resources (e.g., wind and solar power) are significantly more expensive than hydropower generation (for more information on the cost of eligible renewable energy resources, see Power Generation and Economics in Section 4.16, Volume I, of this Final EIS/EIR).

The ability to maintain low-cost and renewable hydroelectric power in the Battle Creek watershed is determined by maintaining the annual cost of Hydroelectric Project power at less than the annual replacement power costs. The difference between operating costs and replacement power costs is the annual net benefit of operating the Hydroelectric Project. According to the cost analysis described under Power Generation and Economics in Section 4.16, Volume I, of this Final EIS/EIR, the Five Dam Removal Alternative is the only action alternative where the annual cost of Hydroelectric Project power production is less than the annual power benefits. In other words, the power production benefits achieved under the No Dam, Six Dam, and Three Dam Removal Alternatives would not be sufficient to cover the applicable operating costs and replacement power costs for these alternatives. The overall project costs associated with implementing these alternatives would be more costly to PG&E's customers.

Other Factors Considered

An important factor that was considered while deciding which dams should remain and which dams should be removed from the Hydroelectric Project is each dam's capacity to contribute to the Hydroelectric Project. Eagle Canyon Diversion Dam plays an important role in the Hydroelectric Project because it increases the redundancy in the system, resulting in greater system reliability

[3] The Battle Creek Area is a transmission system defined by the California Independent System Operator that services in part the Battle Creek watershed.

should a power emergency occur (see Effect 16-1 in Section 4.16, Volume I, of this Final EIS/EIR).

Additional factors that were considered when selecting which dams should remain and have fish screens and fish ladders installed included ease of access to the diversion dam and proximity to other PG&E facilities. Dams that are closer to the Manton Service Center (e.g., Eagle Canyon and Inskip Diversion Dams) or that are easy to access (e.g., Inskip Diversion Dam) were deemed more suitable for having fish screens and ladders installed. Additionally, fish screens and ladders at dams that are located near other PG&E facilities (e.g., Inskip, and North Battle Creek Feeder Diversion Dams) would be easier to maintain.

Comparing the Eight Dam Removal Alternative to the Proposed Action

The following analysis of the Eight Dam Removal Alternative (i.e., Alternative B) and its comparison to the Proposed Action (i.e., the MOU Alternative or Five Dam Removal Alternative) is a summary of the full analysis contained in the section titled Alternatives Eliminated from Further Consideration in Chapter 3 in Volume I of this Final EIS/EIR.

Background

Following public circulation of the Draft EIS/EIR (July through October 2003), a new alternative, the Eight Dam Removal Alternative (Alternative B), was proposed for analysis by the CBDA. As part of this analysis, the Eight Dam Removal Alternative is compared to the Proposed Action for the Restoration Project (Five Dam Removal Alternative, also known as the MOU Alternative). This comparative analysis was conducted outside of the NEPA/CEQA document to determine whether an additional alternative should be included in the EIS/EIR.

Based on the CBDA CALFED ERP independent technical review of the Restoration Project, the ERP Selection Panel recommended that the PMT consider a more comprehensive decommissioning of the Hydroelectric Project to determine whether increased environmental benefits could be achieved. In response to this request, a group of economists and engineers from Reclamation, Environmental Defense, the California Hydropower Reform Coalition (CHRC), Natural Heritage Institute, The Metropolitan Water District of Southern California (MWD), and PG&E used FERC's current cost economic method to conduct a cost review of the Five Dam Removal Alternative and several additional alternatives. The cost review team identified three additional alternatives, which are identified as Alternatives A, B, and C below.

- Alternative A would involve decommissioning the entire Hydroelectric Project, including PG&E's facilities upstream of the natural fish passage barriers on Battle Creek);
- Alternative B (i.e., Eight Dam Removal Alternative) would involve decommissioning all diversion dams, and exclude decommissioning of the powerhouse facilities, below the natural fish passage barriers on Battle Creek, with the exception of Asbury Pump Diversion Dam; and
- Alternative C (see Alternative 6 in the section titled Alternatives Eliminated from Further Consideration in Chapter 3 in Volume I of this Final EIS/EIR) would involve decommissioning all diversion dams and powerhouse facilities below the natural fish passage barriers on Battle Creek.

The cost review team presented their preliminary findings at the CBDA Bay-Delta Public Advisory Committee Ecosystem Restoration Subcommittee meeting on January 15, 2004. Based on these preliminary cost results, it was decided that the PMT would further compare the potential incremental habitat and other benefits of Alternative B and the Five Dam Removal Alternative.

The preliminary cost review completed in January 2004 indicated that the Five Dam Removal Alternative and Alternative B (the Eight Dam Removal Alternative) were similar in cost. These cost findings, however, have since been revised. The revised cost review completed in May 2005 shows that the expected project costs associated with the Five Dam Removal Alternative are actually lower than the Eight Dam Removal Alternative ($128 million and $139 million, respectively; see Tables 3-8 and 3-9 in Chapter 3 in Volume I of this Final EIS/EIR). Because the remaining alternatives (Alternatives A and C) were substantially more expensive than the MOU Alternative, they were excluded from further consideration.

Comparison of Alternatives

At the request of the Ecosystem Restoration Subcommittee, the PMT formed a group of technical experts to analyze the biological differences between the Five Dam Removal Alternative and the Eight Dam Removal Alternative. Specifically, a group of experts, including representatives from Reclamation, USFWS, DFG, The Nature Conservancy, PG&E, and CHRC, analyzed habitat benefits, which included geomorphology, habitat and temperature, hydrology, and fish passage. Following is a summary of the analysis results used to define the differences between the Five Dam and Eight Dam Removal Alternatives based on five criteria: habitat benefits, risk of transferring serious fish diseases, costs, the ability to meet project objectives, and the ability to meet CALFED objectives.

Habitat Benefits

The Battle Creek PMT conducted a comparative analysis of the habitat benefits associated with the Five Dam Removal Alternative and the Eight Dam Removal Alternative. The resource agencies concluded that, compared to the existing conditions present under the current FERC license, both alternatives would significantly improve habitat and passage conditions for the target species. However, the habitat and passage conditions predicted for the Eight Dam Removal Alternative did not represent a significant improvement over those predicted for the Five Dam Removal Alternative.

These findings are presented in detail in a draft report entitled *Further Biological Analyses for Information Presented on March 15 Regarding the Differences between the Five Dam Removal Alternative and the Eight Dam Removal Scenario* (DFG 2004). The Nature Conservancy prepared a separate analysis of sediment transport for both alternatives (The Nature Conservancy 2004). Copies of both reports can be found on the CBDA website:

http://www.calwater.ca.gov/Programs/EcosystemRestoration/EcosystemBattleCreek.shtml.

The CHRC also conducted a review of incremental biological benefits associated with the Five Dam and Eight Dam Removal Alternatives and provided comments on the PMT's analysis. Their analysis is detailed in a report entitled *Analysis of Dam Removal Alternative B, Battle Creek Salmon and Steelhead Restoration Project* (CHRC 2004). A copy of CHRC's report is found on the CBDA website:

http://www.calwater.ca.gov/Programs/EcosystemRestoration/EcosystemBattleCreek.shtml.

Although the PMT (and DFG) concluded that the Eight Dam Removal Alternative failed to provide any significant biological advantages over the Five Dam Removal Alternative (see Table 3-10 in Chapter 3 in Volume I of this Final EIS/EIR), the CHRC asserts that, compared with the Five Dam Removal Alternative, the Eight Dam Removal Alternative would substantially increase summer base flows, restore interannual flow variability in summer, reduce temperatures in most areas, and reduce North Fork/South Fork mixing. The report also emphasized the importance of the descending limb of the hydrograph, i.e., the transition from the winter (high) to summer (low) flow season (Norlander pers. comm.).

CBDA conducted a peer review of the biological analyses prepared by DFG and CHRC entitled *Review of Documents Related to Alternatives for Dam Removal* (CBDA 2004). A copy of this technical report is found on the CBDA website:

http://www.calwater.ca.gov/Programs/EcosystemRestoration/EcosystemBattleCreek.shtml.

Risk of Transferring Serious Fish Diseases

Naturally spawning Chinook salmon and steelhead are known to carry virulent diseases that can have serious adverse effects on other anadromous and non-anadromous fish communities (USFWS 1997a). Many of these diseases are waterborne and can be passed into groundwater supplies (Pert pers. comm.). As part of the Hydroelectric Project, PG&E canals divert water from Battle Creek to various project powerhouses. Currently, Battle Creek water seeps into the local shallow groundwater table as it passes through two unlined PG&E canals—Eagle Canyon Canal and Inskip Canal. Groundwater that may become contaminated with these fish diseases resurfaces as natural springs that two MLTF facilities—Jeffcoat (including Jeffcoat East, Jeffcoat West, and the Jeffcoat nursery) and Willow Springs—use as their main water supply. The canal seepage could potentially transport waterborne pathogens from Battle Creek into the spring-fed water supplies of these MLTF facilities. Resident rainbow trout above the MLTF intake have commingled in the past with wild anadromous fish and would continue to commingle under the No Action Alternative or existing conditions; therefore, the resident rainbow trout are potential carriers of diseases that are also carried by anadromous fish and considered a possible threat to MLTF rainbow trout.

In comparing the Five Dam and Eight Dam Removal Alternatives, the PMT found that implementing the Five Dam Removal Alternative would result in the potential to expose MLTF's water sources to the incidence of fish pathogens by increasing the abundance and upstream distribution of Chinook salmon and steelhead in Battle Creek. This increased exposure could further result in the potential infection of fish communities in California where MLTF's farmed trout are stocked and could also potentially result in water quality impacts. These impacts are considered significant, and mitigation measures are recommended to reduce these impacts (see Master Response E; see also mitigation measures recommended under Impact 4.1-8 in Section 4.1, Fish, and Impacts 4.4-3 and 4.4-4 in Section 4.4, Water Quality, in Volume I of this Final EIS/EIR).

The impacts described above would be less than significant under the Eight Dam Removal Alternative because Eagle Canyon Canal would be decommissioned under this alternative and would no longer divert Battle Creek water that may transport pathogens to the water source for MLTF's Jeffcoat facilities. Although Inskip Canal would continue to divert water under the Eight Dam Removal Alternative, its water would be diverted from Battle Creek above natural fish barriers, where there would still be some risk of being exposed to diseases from resident fish carrying virulent fish diseases but not to the extent there would be under the No Action Alternative or existing conditions.

Although there would continue to be a slight risk of disease transmission to MLTF under the Eight Dam Removal Alternative, because this risk is less than the No Action Alternative or existing conditions, the risk of transporting pathogens to MLTF's Willow Springs water source via Inskip Canal under the Eight Dam Removal Alternative would be considered less than significant. The

Eight Dam Removal Alternative was therefore found to reduce the potential for spreading infections fish diseases compared to the Five Dam Removal Alternative.

Direct Project Costs and Hydroelectric Energy Reductions

According to the updated May 2005 cost estimate prepared by Reclamation for the Restoration Project, direct planning and implementation costs for the Five Dam Removal Alternative are estimated to be greater ($78 million) than for the Eight Dam Removal Alternative ($59 million) (see Table 3-9 in Chapter 3 in Volume I of this Final EIS/EIR). These costs do not include replacement energy costs.

Although direct project costs are more for the Five Dam Removal Alternative, an independent consultant[4] determined that the Eight Dam Removal Alternative would result in more than a 50% reduction of renewable energy production from the Hydroelectric Project. In contrast, using the same consultant's model, the Five Dam Removal Alternative would result in approximately a 30% reduction of energy production (see Table 3-9 in Chapter 3 in Volume I of this Final EIS/EIR).

The increase in forgone renewable energy production from 30% to 50% would require PG&E to invest in costly alternative renewable energy sources, which results in the Eight Dam Removal Alternative being more costly overall (see Tables 3-8 and 3-9 in Chapter 3 in Volume I of this Final EIS/EIR). As a result, the Eight Dam Removal Alternative is not preferred because this alternative provides only slightly more habitat benefits for anadromous fish and replacement power costs associated with this alternative are substantially greater compared to the Five Dam Removal Alternative (Livingston pers. comm.).

Ability to Meet Project Objectives and CALFED Program Objectives

Evaluating the Five Dam and Eight Dam Removal Alternatives against project objectives for the Restoration Project and CALFED Program solution principles resulted in the following conclusions:

- The Five Dam Removal Alternative better meets the project objective "to minimize the loss of clean and renewable energy produced by PG&E's Hydroelectric Project;" and
- The Five Dam Removal Alternative better meets the CALFED Program solution principles because it is (1) better able to reduce conflicts in the system by employing solutions that reduce major conflicts among beneficial

[4] Navigant Consulting, Inc. Battle Creek Salmon and Steelhead Restoration Project model output dated April 27, 2004.

water users, (2) more equitable in finding solutions that solve problems, (3) more affordable, (4) more durable by dedicating water rights to the environment in perpetuity, (5) more implementable, and (6) associated with fewer redirected impacts when compared to the Eight Dam Removal Alternative.

Generally, the Five Dam Removal Alternative was found to be more consistent with CALFED solution principles than the Eight Dam Removal Alternative because the Five Dam Removal Alternative would result in less conflict with PG&E's Hydroelectric Project and no significant redirected impacts would result. The Eight Dam Removal Alternative would result in loss of PG&E support for the project and could result in other redirected environmental impacts related to the development of other renewable energy sources (e.g., wind energy).

Summary/Conclusions

In summary, the Eight Dam Removal Alternative was excluded from further consideration for the following reasons.

- Incremental habitat benefits of the Eight Dam Removal Alternative would be only marginally better compared to the Five Dam Removal Alternative.
- The cost of replacement energy for the Eight Dam Removal Alternative would be excessive.
- The Five Dam Removal Alternative better achieves a key project objective of minimizing the loss of clean and renewable energy produced by the Hydroelectric Project.
- The Eight Dam Removal Alternative lacks support of a willing participant (i.e., PG&E), as required by the CALFED Program objectives.

In consideration of the above, the Proposed Action (i.e., the Five Dam Removal Alternative) as described in the 1999 MOU and as defined in Chapter 3 in Volume I of this Final EIS/EIR continues to represent the best balance of resources.

After several months of extensive investigation and discussions and further economic analyses, the members of the Battle Creek PMT agree that the Eight Dam Removal Alternative should be removed from further consideration and that the Five Dam Removal Alternative currently remains the best opportunity to restore significant amounts of habitat on Battle Creek while maintaining clean and renewable energy produced by the Hydroelectric Project.

Support for the Proposed Action

The Five Dam Removal Alternative was selected as the Proposed Action because it best meets the purpose and need and the project objectives identified in Chapter 2 in Volume I of this Final EIS/EIR. As a result, the Restoration Project Proposed Action has received decisive support from PG&E, the Four Agencies (including PG&E), the Greater Battle Creek Watershed Working Group (GBCWWG), and the BCWC.

PG&E, the owner and operator of the Hydroelectric Project, will voluntarily seek to amend its FERC license for the Hydroelectric Project license and support restoration efforts in Battle Creek. As indicated by their letter dated March 29, 2004, PG&E is committed to the MOU Alternative (i.e., the Five Dam Removal Alternative) (Livingston pers. comm.; see Attachment A).

The Four Agencies (Reclamation, USFWS, DFG, and NOAA Fisheries), in coordination with PG&E, also show strong support for the Restoration Project. In their letter dated March 22, 2005, the Four Agencies and PG&E encourage the CBDA ERP to consider funding the Restoration Project and allow "this exciting and unique restoration opportunity to become a reality" (Four Agencies and PG&E pers. comm.; see Attachment B).

The Battle Creek Working Group (BCWG), which was first formed in 1995 by diverse stakeholder groups and later joined by governmental resource agencies, was the original planning body for what has since developed into the Battle Creek Restoration Project. The BCWG, whose primary goal is to successfully restore populations of endangered salmonids in Battle Creek, also wrote to the CBDA ERP encouraging them to provide additional funding for the Restoration Project in their letter dated May 3, 2005 (GBCWWG 2005; see Attachment C).

The BCWC was formed in 1997 by a group of local landowners to discuss restoration efforts in the Battle Creek Watershed and to include community-related issues not found in other technical plans prepared by the agencies. In May 2001, the BCWC Board presented a resolution recommending that the membership agree not to support the Restoration Project "in its present form." Since that time, the BCWC Board has worked diligently with the Four Agencies and has seen substantial progress in resolving key issues that the Board was concerned about in relation to the Restoration Project (see Master Response D below). As a result, on May 23, 2005, the BCWC Board released a statement indicating that the BCWC Board now recommends support of the Restoration Project in its current form (BCWC Board pers. comm.; see Attachment D).

Master Response C—Revisions to the Draft Adaptive Management Plan

A comprehensive final AMP was developed by the Battle Creek AMTT and the Adaptive Management Policy Team (AMPT) for the Restoration Project pursuant to the 1999 MOU. During the Restoration Project, unanticipated factors may influence fishery restoration, or initial actions may produce unforeseen outcomes. The purpose of the AMP is to monitor the effectiveness of the Restoration Project and to refine and guide actions in response to unexpected results. The goal of the Restoration Project AMP is to design specific actions to:

- protect, restore, enhance, and monitor salmonid habitat in Battle Creek;
- guard against false attraction of Chinook salmon and steelhead between North Fork Battle Creek and South Fork Battle Creek; and
- ensure that the target species, in all life stages, are able to fully access and beneficially use available habitat, thereby maximizing natural production and use of the ecosystem carrying capacity.

The AMP is intended to apply specifically to the Restoration Project and is not a general watershed management plan. Its objectives and protocols are evaluated in light of these stated purposes. Should another action alternative be selected as the Proposed Action, the current adaptive management plan would need to be modified to relate specifically to the selected alternative.

Comments and Concerns Related to the Adaptive Management Plan

The Draft AMP was evaluated as an appendix to the Draft EIS/EIR (Jones & Stokes 2003), which was circulated for public review from July 18–October 16, 2003. The CBDA TRP Report (Borcalli et al. 2003) also reviewed the Draft AMP and provided comments. Additional comments on the Draft AMP were received from the CBDA ERP Science Board in December 2003 and again in March 2004. The CBDA TRP on Coleman National Fish Hatchery provided comments pertaining to the Draft AMP in January 2004. Oral and written comments were received from the BCWG in March 2004 that pertained to an administrative draft of the Final AMP.

Most comments received on the Draft AMP during public review and from the CBDA panels and BCWG expressed concern about adaptive management funding, monitoring, project success, technical analysis, design specifications, and sedimentation. The following sections provide a general depiction of those concerns related to the Restoration Project AMP that were expressed by the public, the CBDA panels, and the BCWG.

Funding

Comment: Funding is one of several limitations for the AMP. Some commentors felt that funding for adaptive actions would be used to correct design flaws or solve operating problems for the Hydroelectric Project facilities, as opposed to being used for monitoring or further restoration actions.

Monitoring

Comment: The monitoring component of the AMP is incomplete. Reviewers expressed the need to expand the adaptive management and monitoring efforts of the Restoration Project to incorporate larger portions of the Battle Creek watershed. Additionally, financial resources available for monitoring were believed to be limited, which could seriously jeopardize the adaptive management program. The CBDA panels also recommended an increased emphasis on monitoring the Restoration Project in order to:

- identify deficiencies or critical actions for adaptive management,
- document the degree of project success,
- identify key responses or relationships for planning and implementing similar projects throughout the region, and
- take advantage of learning opportunities associated with Restoration Project implementation.

Project Success

Comment: The success of the Restoration Project is not clearly defined. Several reviewers concerned with the potential success of the Restoration Project requested clarification as to when the project would be "successful" and what would be the expected number of returning salmon and steelhead.

Some reviewers also felt the Draft AMP did not adequately discuss the scientific uncertainties associated with the Restoration Project, specifically, those uncertainties relating to the adaptive management strategy for the Proposed Action. The reviewers felt these uncertainties could severely compromise the ability to plan, adopt, and implement acceptable adaptive management strategies during the lifetime of the Restoration Project. These uncertainties could also interfere with the development and implementation of appropriate indicators to measure progress, success, or failure of the Restoration Project.

Technical Analysis

Comment: The technical analysis has gaps. Some reviewers felt uncertain that viable founding populations of wild Chinook salmon and steelhead are present in the Battle Creek watershed and questioned how to successfully reintroduce these species to Battle Creek. Reviewers also felt that the Draft AMP needed to better describe initial assumptions and validate the tools used. In general, reviewers felt the technical analyses presented in the appendices of the Draft AMP are characterized primarily by using estimates or simulated data, as opposed to measured data, and that measured data should form the foundation of future analysis.

Design Specification

Comment: Design specifications are not adequate. Several reviewers agreed that elimination of cross-basin transfer of water from North Fork Battle Creek into South Fork Battle Creek would be a major benefit for adult and juvenile salmon; however, some reviewers of the Draft AMP felt that this strategy was not adhered to under all conditions. In particular, during high flows maintenance of facilities downstream of South Powerhouse could potentially cause North Fork Battle Creek water to spill into South Fork. Some reviewers suggested isolating North Fork water from South Fork instream flow in order to completely restore stream functions and values for salmonids.

Several reviewers also expressed concerns related to fish screen designs. Some reviewers felt the flow conditions under the current design did not appear to meet NOAA Fisheries' screen criteria. They also felt the floor of the fish screen structure downstream of the screen panel should be lowered so that flow is not impeded through the lower portion of the screen and would thereby allow the louvers to be effective throughout the full depths of the screen.

Sedimentation

Comment: The effects of mobilizing sediment in Battle Creek are not adequately addressed. Several reviewers stated that the effects of mobilizing relatively large amounts of sediment were not adequately addressed in the Draft AMP. Some reviewers indicated that current discussions of sediment characteristics and potential alterations to the transport regime were strictly in the context of dam removal and felt it would be more appropriate to further evaluate the long-term issue of future management of the gravel resource in the Battle Creek watershed.

Response to Public Concerns

The AMTT and AMPT took into consideration comments received from the CBDA panels and BCWG, as well as comments received during public review of the Draft EIS/EIR, and developed a reconceived AMP for the Restoration Project. The sections provided below summarize some of the revisions that were incorporated into the revised Draft AMP to address the concerns described under the section above, Comments and Concerns Related to the Adaptive Management Plan. A revised Draft AMP was provided in April 2004. The executive summary for the revised Draft AMP is presented in Appendix D in Volume II of this Final EIS/EIR. The complete report is available on the Restoration Project website:

http://www.usbr.gov/mp/battlecreek/docs-adapt_manage.html.

Funding

The Restoration Project AMP is directed at correcting design problems for hydroelectric facilities or solving operational problems associated with these facilities, including flow releases. The scope of funding for adaptive actions is constrained in part by the sources that have offered to provide funds. Reclamation will provide $3 million for the Water Acquisition Fund for water acquisition only. The Packard Foundation has offered to provide $3 million for the Adaptive Management Fund for facility modifications or water acquisition. PG&E has offered to provide up to $6 million for facility modifications or water acquisition. The resource agencies and PG&E have agreed to fund their own participation with the AMPT/AMTT, and each participant has offered to provide funding for various aspects of monitoring. The CBDA and other funding sources will be asked to provide approximately $17.4 million for monitoring and learning opportunities. Each of these funding sources and potential funders has criteria for encumbering their funds that remain outside the control of Restoration Project planners.

The scope of the AMP was intended to be broad and to address virtually all impacts that the Hydroelectric Project could have on anadromous salmonids. Funding for the AMP is directed predominantly to water acquisition. Of the $12 million committed to adaptive management actions, up to 100% could be spent on water acquisition, while no more than $9 million could be spent on facility modifications. Water acquisition can be used to address a number of potentially limiting factors, including fish passage, water temperature, and instream habitat needs.

Monitoring

The Restoration Project may implement modifications only to PG&E's Hydroelectric Project facilities and operations, as explained in the 1999 MOU (see Appendix A in Volume II of this Final EIS/EIR) and may not implement other related actions in the Battle Creek watershed. The BCWG expressed the need to expand the adaptive management and monitoring efforts of the Restoration Project to incorporate the greater Battle Creek watershed and, as a result, is working to create an adaptive management effort for the watershed. Because the BCWG also supports integrated adaptive management efforts, the group will likely prepare their plan to be as compatible as possible with the Restoration Project AMP.

Funding sources, other than those identified above under Funding, will be used to monitor those aspects of the hydroelectric facilities that are unrelated to adaptive management as specified in the Facilities Monitoring Plan. Restoration Project construction impacts also will be mitigated. Avoiding, minimizing, and compensating for significant impacts on fish, wildlife, and their habitats will be provided to the extent practicable and consistent with ecosystem restoration principles of the CALFED Program. Successful mitigation of significant impacts is necessary to avoid redirection of impacts and to ensure balanced treatment of ecosystem components by the Restoration Project. Ensuring success of mitigation would be consistent with principles and/or requirements of NEPA, CEQA, federal Endangered Species Act, California Endangered Species Act, Clean Water Act, and all other applicable environmental laws and regulations. Monitoring construction impacts and mitigation measures will be performed in addition to adaptive management monitoring.

As requested by the CBDA panels, the revised Draft AMP includes new monitoring studies and focused studies that take advantage of learning opportunities created by Restoration Project implementation, including sediment monitoring and riparian habitat monitoring. The sediment monitoring plan, which involves monitoring gravel resources and sediment routing in Battle Creek, is described in Section III.C.1 and Appendix VI of the revised Draft AMP (Appendix C in Volume II of this Final EIS/EIR). Riparian habitat monitoring, which involves monitoring riparian benefits that are expected to result from increased instream flows, is described in Section III.C.2 and Appendix VII of the revised Draft AMP (Appendix C in Volume II of this Final EIS/EIR).

Project Success

Numeric goals related to attaining genetically viable self-sustaining populations of endangered anadromous fish are expected to be finalized with the forthcoming NOAA Fisheries Endangered Species Technical Recovery Team reports (expected by 2006). Until then, the revised Draft AMP recommends an interim numeric goal that is considered to be moderately conservative. An annual target of 1,000 adult steelhead and 1,000 of each of four races of Chinook salmon

spawners could serve as an interim quantitative goal until such time that the NOAA Fisheries Technical Review Team establishes quantitative viable population levels.

The Draft AMP has been substantially revised, or "reconceived," since submittal of the Draft EIS/EIR as a result of recommendations presented in the TRP Report (Borcalli et al. 2003) and reviews from the other CBDA panels and BCWG. An important component of the revision was the inclusion of conceptual models that illustrate logical thought processes underlying the limiting factors analysis that supports the Restoration Project, underlying the planned implementation of the Restoration Project, and underlying adaptive management objectives.

A detailed section has also been included in the revised Draft AMP to address scientific uncertainties. This section (Section I.D., Key Uncertainties and Learning Opportunities) identifies nearly 100 scientific uncertainties. For each uncertainty this section describes, a biological limiting factor, conceptual models, prioritization, rationale and implication of uncertainty, an activity to address the uncertainty, the adaptive management objective or study that would address the uncertainty, and related monitoring tasks. These uncertainties and related conceptual models are now addressed throughout the revised Draft AMP (Appendix C in Volume II of this Final EIS/EIR).

Additionally, the role of potentially interested members of the public (e.g., landowners, academics) in adaptive management was more clearly specified. Researchers were specifically invited to participate in learning opportunities presented by the Restoration Project.

Technical Analysis

As mentioned above, the Draft AMP has been substantially revised, or reconceived, since preparation of the Draft EIS/EIR to include detailed sections (Section I.D., Key Uncertainties and Learning Opportunities) that address conceptual models and scientific uncertainties. These sections thoroughly evaluate initial assumptions and also validate the use of particular tools and approaches through careful, logical development.

The revised Draft AMP also recognizes that existing populations of target species are low and incorporates this understanding into the implementation of population objectives, regardless of how NOAA Fisheries chooses to proceed with recovery (see Section III.A.2 of the revised Draft AMP [Appendix C in Volume II of this Final EIS/EIR]).

Design Specifications

The design of the Restoration Project currently allows some North Fork Battle Creek water to spill into South Fork Battle Creek during maintenance of the facilities downstream of the South Powerhouse. The 1999 MOU for the Restoration Project (Appendix A in Volume II of this Final EIS/EIR) includes terms that guard against false attraction to the extent controllable by limiting planned maintenance activities to a wet-season period with elevated South Fork flow volume to dilute North Fork water. In addition, the specified period for planned maintenance will be outside the winter-run and spring-run Chinook salmon spawning period to allow migrating adults time to find natal waters and redistribute appropriately. The 1999 MOU defines this action as "guarding against false attraction," which acknowledges that there will be some factors in hydropower operation that will not allow it to be practical or feasible to completely isolate North Fork and South Fork waters. A discussion of the possible effects of unplanned spills on juvenile salmonid imprinting has also been included in the revised AMP.

With respect to concerns related to fish screen designs, designated representatives from the fisheries agencies (including DFG and NOAA Fisheries) were involved with the design process for the Restoration Project and concurred with the fish screen and ladder design.

Sedimentation

Gravel resources in Battle Creek are provided transport through the PG&E diversion dams in the project area by means of the opening pass through gates at the bottom of each dam during major storm events. In addition, there is no mining of gravel in Battle Creek and past practices of removing accumulated gravels from the floodplain behind the dams have ceased.

Studies regarding the release of impounded sediments are discussed in the report "Sediment Impact Analysis of the Removal of Coleman, South, and Wildcat Diversion Dams on South and North Fork Battle Creek" (Greimann 2001), which is referenced by the TRP.

Sedimentation could occur within the Restoration Project via two mechanisms: suspended solids in the water column and settlable solids that could cover the stream bottom and existing substrate. The more serious and long-term impacts on biological resources are associated with sedimentation of the stream bottom.

Negligible amounts of sediment exist behind Soap Creek Feeder and Lower Ripley Creek Feeder Diversion Dams; therefore, no analysis was necessary for these two sites. Both sites are located on tributaries to Battle Creek.

Battle Creek carries a large range of sediment sized from fine sand to larger boulders, but with very little silt or clay, such that turbidity is not expected to be a significant problem during dam removal at any site. The amount of material stored behind diversion dams to be removed from North Fork and South Fork Battle Creek is relatively small (5,000 cubic yards [yd³] behind Wildcat Diversion Dam on the North Fork and a total of 58,000 yd^3 behind South and Coleman Diversion Dams on the South Fork) and is not expected to cause significant impacts on the downstream channel when released.

The 58,000 yd^3 of sediment behind the dams on South Fork Battle Creek would be released slowly during major storm events. The release in the first couple of years following implementation of the Restoration Project is likely to be the greatest fraction of the stored sediment. To minimize unanticipated impacts, small pilot channels are proposed at these sites to help ensure fish passage immediately following dam removal (see the project description provided for South Diversion Dam and Coleman Diversion Dam/Inskip Powerhouse in Chapter 3 in Volume I of this Final EIS/EIR). The excavated sediment would be left on the stream banks to be eroded during future higher floodflows.

These sediment volumes are much less than the annual sediment transport capacity of South Fork Battle Creek (~100,000 yd³), and most of the impounded material should be eroded within the first year after dam removal. A focused study is proposed to describe sediment transport dynamics, aggradation, and degradation in response to sediment release following dam removal. This study would facilitate comparison of channel evolution to predicted model simulations and relates channel morphological response to habitat values.

Upon implementation of the Restoration Project, the sand and gravel material that would be released during large storms that inundate the floodplain would not substantially increase the net downstream movement of these materials under storm conditions without the Restoration Project. These materials are the basic geomorphic input for the gravel bars, which provide spawning and rearing habitat. Pools and low-gradient areas in Battle Creek do not remain filled with gravel and cobble because during high storm events the water actually scours these pools while depositing the transported sands and gravels predominantly along the sides of the channel, storing these raw materials for later transport to gravel bars that provide habitat. Only a very small fraction of these stored gravels and fine materials would move downstream and settle in pools and gravel bars. The fine materials moved during storm events would not cause a significant degradation of aquatic habitat in South Fork Battle Creek, mainstem Battle Creek, or in the Sacramento River channel. Adaptive management associated with the Restoration Project will include at least 3 years of sediment monitoring.

The metered release of sediments during high flow events would be complimentary to the placement of spawning-sized gravels in lower Battle Creek. Larger cobbles that are released would find areas with appropriate hydraulic conditions for the deposition of cobbles and fill the cascades and channel margins

of Battle Creek. Some of the released material would be spawning-sized gravels, which would be sorted naturally by the stream hydraulic forces and deposited in bars with similar spawning-sized gravels. Thus, the release of sediments during high flow events would not negate efforts to enhance spawning opportunities.

The eroded sediments are not expected to have significant impacts on the bed gradations over long reaches of the river, and any local impacts should be temporary and minor. As Coleman and South Diversion Dams are separated by more than 11 river miles, and Inskip Diversion Dam will remain between the two dams, the sediment released at the South Diversion Dam removal site should not cause an incremental impact at the Coleman Diversion Dam removal site. Removing the diversion dams would be accompanied by short-term turbidity measurements and longer-term sediment movement monitoring and photographs. This mitigation monitoring is described under Impact 4.4-5 in Section 4.4, Water Quality, in Volume I of this Final EIS/EIR.

Master Response D—Potential Effects of Coleman National Fish Hatchery Operations on Restoration Project Success

The Coleman National Fish Hatchery, constructed in 1942, is located on the north side of Battle Creek approximately 6 miles upstream of the confluence of Battle Creek and the Sacramento River. Because of its location on Battle Creek, facility operations at the hatchery are intimately linked to the Battle Creek watershed. The Coleman National Fish Hatchery is part of a complex federal and state hatcheries system instated in the Central Valley in order to mitigate the loss of habitat that resulted when upstream dams blocked access to historical salmonid spawning grounds. The authorized purpose of this hatchery is to mitigate the effects of Shasta Dam on salmonid populations. Shasta Dam resulted in the loss of approximately 187 miles of spawning and rearing habitat for anadromous salmonids, which amounts to approximately 50% of the Chinook salmon and steelhead spawning and rearing habitats in the Sacramento River system (Skinner 1958).

Coleman National Fish Hatchery operation is funded by Reclamation and is guided by USFWS policy and other state and federal laws. The Livingston Stone National Fish Hatchery—located directly below Shasta Dam—is part of the Coleman National Fish Hatchery complex and exclusively rears winter-run Chinook salmon as part of a recovery program for that listed species.

Comments and Concerns Related to Hatchery Operations

The Restoration Project was evaluated in the Draft EIS/EIR (Jones & Stokes 2003), which was circulated for public review from July 18 to October 16, 2003. Several commentors on the Draft EIS/EIR stated that the document did not adequately address potential adverse effects of Coleman National Fish Hatchery operations on the Restoration Project. Specifically, the commentors stated that Coleman National Fish Hatchery operations should be coordinated with Restoration Project operations so that operation of the barrier weir, as well as other hatchery operations, would not interfere with the migration of wild anadromous fish (spring-run and winter-run Chinook salmon and steelhead) in Battle Creek, thereby compromising the success of the Restoration Project. Commentors explained that the USFWS's intention to "integrate" Coleman National Fish Hatchery operations with the Restoration Project is not enough and that a legally binding agreement among the relevant agencies would be appropriate. In addition, commentors were also concerned about the disposition of adult steelhead returning to the hatchery and hatchery supplementation activities in Battle Creek. Additionally, commentors felt that the best means to

address concerns related to Coleman National Fish Hatchery operations would be to develop and implement an adaptive management plan for the hatchery.

Response to Public Concerns

Since nearly the inception of the Restoration Project, the local community has expressed concern about how Coleman National Fish Hatchery operations could affect the project's success. The lead agencies understand and acknowledge this concern. Since 1997, the public has been involved in almost monthly meetings (e.g., meetings of the BCWG and its successor, the GBCWWG) to participate in discussions of Coleman National Fish Hatchery operations, fish population monitoring, and hydropower project operations. Since the Draft EIS/EIR was released for public review, Reclamation, USFWS, and CBDA have taken measures to address the public's concerns regarding Coleman National Fish Hatchery operations. Actions implemented by Reclamation, USFWS, and CBDA are described below.

California Bay-Delta Science Program Technical Workshop—October 2003

On October 7 and 8, 2003, the California Bay-Delta Science Program convened a technical workshop to review some key issues involving the restoration of salmonid habitat in Battle Creek. The CBDA established an independent science panel, the Coleman National Fish Hatchery Science Panel (Coleman Science Panel), to provide an independent evaluation of scientific issues related to the Restoration Project and the operations of the Coleman National Fish Hatchery, and to assist in the decision-making process for the CBDA ERP. The five-member panel is composed of distinguished scientists who have not been involved in the Restoration Project, yet who have the necessary background in genetics, fish health, hatchery–wild fish interactions, population dynamics, and basic salmonid biology needed to assess the effects of hatcheries on naturally spawning salmonids. The review focused on the role and impacts of facilities and operations of the Coleman National Fish Hatchery and the effects on Battle Creek restoration efforts. A summary of this workshop can be found in Brown and Kimmerer (2004). In addition to providing a summary of the technical workshop, the Coleman Science Panel prepared a report summarizing its findings from the October 2003 meeting in a report for the CBDA Science Program (see Coleman Science Panel Identifies Need to Use an Adaptive Management Plan below).

Coleman Science Panel Identifies Need to Use Adaptive Management—January 2004

The Coleman Science Panel findings from the October 2003 technical workshop are presented in a report entitled *Compatibility of Coleman National Fish Hatchery Operations and Restoration of Anadromous Salmonids in Battle Creek* (Busack et al. 2004).

The Coleman Science Panel concluded that the operation of Coleman National Fish Hatchery may pose significant risk to the recovery of anadromous salmonids in Battle Creek (Busack et al. 2004). The panel stated that adaptive management is essential on Battle Creek and that an adaptive process should be capable of changing management priorities, including those at Coleman National Fish Hatchery, to ensure the success of the Restoration Project.

The principal message of the Coleman Science Panel's findings, and the main reason that adaptive management is needed, is that scientific uncertainties underlie all aspects of Battle Creek fisheries management, including the interactions between the Restoration Project and Coleman National Fish Hatchery. Adaptive management is recommended by the Restoration Project as the best strategy for incorporating scientific uncertainty into decision-making. The Restoration Project has developed a thorough AMP; however, this plan does not cover activities of the Coleman National Fish Hatchery. An adaptive management plan specifically for Coleman National Fish Hatchery operations is described below under "Proposal to Develop an Adaptive Management Plan—April 2004."

Presentations Supporting Adaptive Management—February 2004

On February 5, 2004, the CBDA Science Program held a public meeting to report the Coleman Science Panel findings from the October 2003 technical workshop. Staff from Reclamation, the agency responsible for funding Coleman National Fish Hatchery, and staff from the USFWS, the agency responsible for operating Coleman National Fish Hatchery, publicly recognized the need for adaptive management at the hatchery at this meeting.

Following the February 2004 public meeting, the BCWC prepared a letter (BCWC 2004) that identified development and implementation of an adaptive management plan for Coleman National Fish Hatchery as one of four tasks necessary to formalize their support of the Restoration Project. The Conservancy's February 2004 letter is entitled *Four Proposed Agency Actions for Securing Conservancy Support for the Battle Creek Salmon and Steelhead Restoration Project* (BCWC 2004). As a result of this letter, the Battle Creek PMT drafted the *Proposal to Facilitate and Develop an Adaptive Management*

Plan for Coleman National Fish Hatchery for Consideration by Greater Battle Creek Watershed Working Group in April 2004 (Reclamation 2004).

Proposal to Develop a Coleman National Fish Hatchery Adaptive Management Plan—April 2004

The Restoration Project PMT developed a proposal for CBDA to request funding for the development of an adaptive management plan for Coleman National Fish Hatchery. Included in the overall PMT proposal to the ERP for the Restoration Project is a related project proposal to develop an adaptive management plan for the Coleman National Fish Hatchery that would:

1. include responsible agencies and interested stakeholders,
2. conform to the "goals and objectives" of the Restoration Project and legally managed hatchery-specific goals and objectives,
3. be reviewed by the Coleman National Fish Hatchery Coleman Science Panel and other principal scientific bodies, and
4. include the scoping and prioritization of diagnostic studies necessary for Coleman National Fish Hatchery adaptive management.

As described in the scientific literature, effective adaptive management requires making adjustments to a system in response to changing circumstances or new findings. To respond to these changes successfully, an entity must be designated with the responsibility and authority to make the necessary adjustments. The AMP for the Restoration Project authorizes modifications to the Hydroelectric Project, which is licensed by FERC. Therefore, the Restoration Project AMP allows only the agencies responsible for implementing the AMP to modify operations of the Hydroelectric Project facilities. Because Shasta Dam is not licensed under the Hydroelectric Project, the Restoration Project AMP would not provide the necessary authority to adaptively manage the hatchery's operations. For these reasons, the Coleman National Fish Hatchery adaptive management plan is a separate component of the coordinated adaptive management program in Battle Creek watershed.

The Coleman National Fish Hatchery adaptive management plan would monitor and assess hatchery operations that may affect the Restoration Project. It would closely coordinate with the Restoration Project AMP and salmon and steelhead restoration in Battle Creek.

The proposal identified Reclamation as the logical lead agency for the Coleman National Fish Hatchery adaptive management plan because Reclamation has the ultimate funding responsibility for the hatchery, it is the federal lead agency for the Restoration Project, and it has a strong track record of funding and facilitating the development of adaptive management in Battle Creek.

The Coleman National Fish Hatchery adaptive management plan would be compatible with, and as rigorous as, the Restoration Project AMP and would be developed using a common framework and be organized in a manner similar to that document. The Coleman National Fish Hatchery adaptive management plan would include, at a minimum: goals, objectives, conceptual models, uncertainties, monitoring and data assessment approaches, specifications of focused studies, description of decision-making process, funding prioritization, and all other elements of formal adaptive management. Adaptive management operating procedures would be well coordinated with those of the Restoration Project AMP.

Development of the Coleman National Fish Hatchery adaptive management plan would involve scientific input and public participation. A Technical Advisory Committee (TAC) would be established among members of the BCWG to guide and assist the facilitation and development of the Coleman National Fish Hatchery adaptive management plan. This TAC would include technical representatives from USFWS, DFG, NOAA Fisheries, and at least three non-agency members of the GBCWWG. Public involvement would be encouraged during all phases of Coleman National Fish Hatchery adaptive management plan development, including regular meetings and reports to the GBCWWG; contact with Battle Creek landowners and residents through the BCWC; public meetings for scoping and reviewing the draft Coleman National Fish Hatchery adaptive management plan; and public participation in the implementation of the Coleman National Fish Hatchery adaptive management plan. The final draft version of the Coleman National Fish Hatchery adaptive management plan would be completed within 18 months of contract initiation.

The proposal identifies the following specific tasks to develop the Coleman National Fish Hatchery adaptive management plan and identifies a schedule and budget to accomplish the tasks.

1. Develop the Coleman National Fish Hatchery adaptive management plan, including (a) scoping, (b) administrative draft, (c) public review draft, and (d) final draft plan within 18 months of contract initiation.
2. Facilitate scientific review of Coleman National Fish Hatchery adaptive management plan development. Reconvene the CBDA Coleman Science Panel to meet with and advise the TAC at two phases of the Coleman National Fish Hatchery adaptive management plan development, including scoping and administrative draft review. Invite the participation of the CBDA ERP Coleman Science Panel and the California Advisory Committee on Salmon and Steelhead Trout in scoping and administrative draft review.
3. Convene a TAC that would include technical representatives from USFWS, DFG, NOAA Fisheries, and at least three non-agency members of the GBCWWG.
4. Facilitate up to 30 meetings (approximately every 2 weeks, at least initially) of the TAC to help Reclamation develop the Coleman National Fish Hatchery adaptive management plan.

5. Facilitate at least three public meetings to solicit and receive public comment on scoping, public draft, and final Coleman National Fish Hatchery adaptive management plan.
6. Perform community outreach related to development of the Coleman National Fish Hatchery adaptive management plan.
7. Report on the Coleman National Fish Hatchery adaptive management plan to GBCWWG on a regular basis and provide written progress reports to CBDA.

U.S. Fish and Wildlife Service Commitments to Integrate Coleman National Fish Hatchery with Battle Creek Restoration Activities

The USFWS (1998) submitted a "Position Paper on Battle Creek Watershed" to the BCWG and others stating that "Coleman National Fish Hatchery operations need to be integrated with natural production in Battle Creek." Examples of this integration include: completion of the ozone water treatment plant, proposed modification to the barrier weir and associated fish ladders, and efforts to screen the facility's water delivery intakes. The completion of the ozone water treatment plant at the hatchery provides for upstream passage of anadromous fish at the upstream fish ladder of the barrier weir. Proposed modifications for the barrier weir are designed to more effectively block the passage of fall-run and late fall–run Chinook salmon, and improvements to the upstream fish ladder are necessary to be consistent with the criteria for fish ladders designed for the hydropower diversions as part of the Restoration Project. Screening the water supply intakes will prevent entrainment of juvenile fish from Battle Creek and ensure integration and compatibility with the Restoration Project. More detailed descriptions of these projects can be found in Chapter 6, "Related Projects," in Volume I of this Final EIS/EIR

Coleman National Fish Hatchery programs are designed to avoid or reduce adverse effects of hatchery operations on natural-origin fish in Battle Creek. For example, one integrated program annually incorporates naturally spawned Chinook salmon and steelhead into the broodstock collected by the hatchery for fish propagation. The result is that a proportion of Chinook salmon and steelhead produced by the hatchery is derived in part from naturally spawned adults. The USFWS believes that this helps maintain a genetic similarity between hatchery-origin fish and natural origin fish, thus minimizing impacts of hatchery operations on natural-origin fish. Additional information on Coleman National Fish Hatchery practices can be found in the Coleman National Fish Hatchery Biological Assessment (U.S. Fish and Wildlife Service 2001b).

Other actions demonstrating commitment to integrate hatchery operations and programs with the Restoration Project include cessation of steelhead supplementation above the barrier weir, support of a Coleman National Fish Hatchery adaptive management plan, requirements under the Endangered Species

Act Section 7, and undertaking of the hatchery reevaluation process. These actions are described below.

CBDA organized additional workshops, held on June 14 and August 4, 2004, to explore strategies for managing the adult hatchery-origin steelhead returning to Coleman National Fish Hatchery and proposed steelhead supplementation activities in Battle Creek. The Coleman Science Panel provided an independent evaluation of scientific issues related to steelhead supplementation in Battle Creek and produced a report titled *Review of the Steelhead Supplementation Program in Battle Creek* (Coleman National Fish Hatchery Science Panel 2004), in which the panel recommended that the steelhead supplementation project be terminated immediately. Based on the recommendation from the steelhead supplementation workshop panel, the USFWS has reaffirmed its commitment to ensure hatchery operations will be consistent with restoration activities by suspending supplementation of steelhead above the Coleman National Fish Hatchery barrier weir.

The USFWS has committed to support development of an adaptive management plan for the Coleman National Fish Hatchery to ensure hatchery operations are compatible with the Restoration Project (proposals for diagnostic studies and adaptive management were submitted to CBDA in May 2004). The Coleman National Fish Hatchery adaptive management plan, as well as the future fisheries management strategy to be developed by DFG and the GBCWWG, may contribute to decisions on future Coleman National Fish Hatchery operations.

As required by the federal Endangered Species Act, the USFWS has submitted a biological assessment to NOAA Fisheries for consultation on current operations at Coleman National Fish Hatchery (U.S. Fish and Wildlife Service 2001b). The USFWS has also agreed to reinitiate consultation with NOAA Fisheries for potential effects of hatchery operations on listed anadromous fish following completion of the Restoration Project and enhancement of salmonid populations (Four Agencies 2001, see Appendix B in Volume II of this Final EIS/EIR).

Additionally, the hatchery reevaluation process undertaken by the USFWS (see Chapter 6, “Related Projects,” in Volume I of this Final EIS/EIR) was precedent-setting in that it afforded substantial public involvement in the examination of operations at Coleman National Fish Hatchery. The reevaluation also contributed substantially to the completion of the biological assessment (USFWS U.S. Fish and Wildlife Service 2001b) and the development of more than 50 hatchery-management alternatives. Many of the hatchery-management alternatives generated will be examined as part of the Coleman National Fish Hatchery adaptive management plan.

Master Response E—Potential Effects Related to the Increased Risk of Serious or Catastrophic Fish Diseases in Battle Creek

Several comment letters received on the Draft EIS/EIR expressed concern that implementing the Restoration Project and restoring anadromous fish populations in Battle Creek would increase the risk of infecting trout produced by MLTF's Jeffcoat and Willow Springs aquaculture facilities and the Darrah Springs State Fish Hatchery with serious or catastrophic fish diseases, such as the infectious hematopoietic necrosis (IHN) virus. The lead agencies addressed this concern as described in this master response.

The following response introduces information describing the potential increased risk of serious or catastrophic fish diseases in Battle Creek. This response also presents a summary describing the analyses of project-related impacts on fish, water quality, and socioeconomics that are associated with the increased risk of serious fish diseases in Battle Creek and lists appropriate mitigation measures to reduce these impacts to a less-than-significant level. Please also refer to the analyses and mitigation measures presented under Impact 4.1-8 in Section 4.1, Fish; Impacts 4.4-3 and 4.4-4 in Section 4.4, Water Quality; and Effect 4.16-5, in Volume I of this Final EIS/EIR for more information.

Background

Naturally spawning Chinook salmon and steelhead are known to carry virulent diseases that can have serious adverse effects on other anadromous and non-anadromous fish communities (USFWS 1997a). Annual production records from the Coleman National Fish Hatchery reveal that disease outbreaks, particularly the IHN virus, occurred almost annually prior to the installation of the ozonation plant for the hatchery (Hamelberg pers. comm.; Foot 1996; Sverdrup and Parcel 1986, 1989). One can infer from these records that the IHN virus has existed in the Battle Creek watershed since at least the early 1940s.

Implementation of the Restoration Project would result in increased numbers of anadromous fish (Chinook salmon and steelhead) to the upper reaches of Battle Creek that are known to carry the IHN virus. This could result in a greater incidence of naturally occurring disease that could infect farmed fish from MLTF facilities and Darrah Springs State Fish Hatchery.

As part of the Hydroelectric Project, PG&E canals divert water from Battle Creek to various project powerhouses. Currently, Battle Creek water seeps into the shallow groundwater as it passes through two unlined PG&E canals—Eagle Canyon Canal and Inskip Canal. Groundwater that may become contaminated

with viruses resurfaces as natural springs that two MLTF facilities—the Jeffcoat site and Willow Springs—use as their main water supply. The canal seepage could transport waterborne pathogens from Battle Creek into the spring-fed water supplies of these MLTF facilities (Pert pers. comm.).

If spring water used by MLTF was found to be contaminated with waterborne pathogens, or if resident rainbow trout that are infected with these diseases commingle with farmed fish, the MLTF operations could be adversely affected. Similarly, steelhead may be able to pass over Asbury Diversion Dam on Baldwin Creek during high flows and potentially infect the Darrah Springs State Fish Hatchery with serious fish diseases carried by anadromous fish. Because under existing conditions (i.e., the No Action Alternative) anadromous salmonids and resident rainbow trout would continue to be present in surface water that is cross-connected with MLTF's water, there is some baseline disease risk at these facilities.

Impacts on Fish

MLTF is the only private fish hatchery in the state of California that has wild anadromous fish migrating above its water intake, and the only rainbow trout hatchery in the state that could transmit waterborne diseases from its water source to other waters in the state of California (Cox pers. comm. 2004b). The increased possibility of pathogens entering the MLTF aquaculture facilities therefore also would increase the risk of a serious disease affecting fish communities in other watersheds.

Similar to MLTF, Darrah Springs State Fish Hatchery plants fish in waters throughout the state of California, especially in northern California. Should the Darrah Springs State Fish Hatchery receive a disease conveyed to them by anadromous fish passing above Asbury Diversion Dam, and it is not detected in the hatchery fish at the time they are transported off site, the disease could be conveyed to other fish communities where the hatchery stocking occurs.

DFG considers the increased risk of waterborne diseases carried by anadromous fish potentially infecting MLTF and Darrah Springs facilities a serious risk because fish from these facilities are stocked in water bodies throughout northern California that currently do not carry these diseases.

Although measures are available to manage the spread of serious or catastrophic fish diseases to other watersheds, such as preventing the exposure of cultured fish to causative agents of such diseases; restricting conditions for stocking with cultured fish; and restricting the movement of diseased cultured fish, DFG does not expect to be able to adequately implement these measures so as to ensure no threat of spreading serious or catastrophic fish diseases to other watersheds. Therefore, the impact of increased risk of a serious or catastrophic fish disease spreading from Battle Creek to fish communities and other water bodies throughout the state of California through stocking with MLTF or Darrah Springs

hatchery fish is considered significant. This Final EIS/EIR presents measures to mitigate this impact to a less-than significant level at the Jeffcoat and Willow Springs sites and Darrah Springs State Fish Hatchery.

- **Jeffcoat Aquaculture Facility.** Water from Eagle Canyon Canal will be diverted into a new watertight pipeline (e.g., high-density polyethylene with heat-welded joints) at a point along the canal that is sufficiently far enough upstream of Jeffcoat's spring source to prevent canal water from mixing with the spring water.
- **Willow Springs Aquaculture Facility.** Currently, four options are under consideration to reduce impacts at the Willow Springs aquaculture facility, including installing a disinfection facility to reduce the risk of contaminated water affecting the aquaculture facility; relocating the Willow Springs facility to an off-site facility; modifying MLTF's operations at Willow Springs to allow on-site farmed trout fishing or to produce alternative coldwater species that are less susceptible to anadromous fish diseases (e.g., brown trout); and acquiring the Willow Springs facility and eliminating trout farming at this site. The preferred mitigation option will be identified in Reclamation's ROD, following the release of this Final EIS/EIR.
- **Darrah Springs State Fish Hatchery.** A new fish barrier will be constructed at Asbury Diversion Dam to prevent steelhead from passing over the dam during high flows.

For more information describing the mitigation listed above for Jeffcoat, Willow Springs, and Darrah Springs State Fish Hatchery, see the mitigation measures proposed under Impact 4.1-8 in Section 4.1, Fish, in Volume I of this Final EIS/EIR.

Impacts on Water Quality

As described above, serious or catastrophic fish diseases could potentially contaminate water used by the Jeffcoat and Willow Springs aquaculture facilities, or Darrah Springs State Fish Hatchery, to farm fish. As a result, the Restoration Project could affect the quality of water used by MLTF and Darrah Springs State Fish Hatchery by increasing the probability of introducing viruses (e.g., IHN) carried by wild anadromous fish in Battle Creek. This would be considered a significant water quality impact.

Additionally, if infected fish from MLTF or the Darrah Springs hatchery were distributed to various lakes and rivers throughout California, the viruses could be spread to aquatic habitats where the disease does not presently exist and could affect the biological integrity of those waters. This potential impact would also be considered a significant water quality impact.

Mitigation measures described above and under Impact 4.1-8 in Section 4.1, Fish, will be implemented to reduce both water quality impacts described here to

a less-than-significant level. See Impact 4.4-3 and Impact 4.4-4 in Section 4.3, Water Quality, in Volume I of the Final EIS/EIR for more information on impacts on beneficial uses of water and impacts on water bodies in other parts of California.

Effects on Socioeconomics

In the event that MLTF's Jeffcoat and Willow Springs aquaculture facilities were to become infected with the IHN virus, fish production most likely would cease at these facilities. The effect on employment and income is difficult to estimate because it is not known whether MLTF would continue operation of its other fish-rearing facilities in the Battle Creek watershed. However, in the event that MLTF completely ceased operation, it is estimated that up to 20 full-time and some seasonal part-time employees would lose their jobs with an estimated combined annual income of $800,000 (Remy, Thomas, and Moose pers. comm.). Some secondary economic effects also may occur because MLTF no longer would purchase supplies needed for operation of the fish-rearing facilities from local or regional suppliers and no longer would pay lease payments to local landowners where facilities are located.

Although the number of people employed at MLTF represents less than 1% of the number of persons employed in Tehama County in 2000, ceasing operations would adversely affect MLTF and would result in the loss of an important employment source to the local economy. The mitigation measure described for the Jeffcoat and Willow Springs facilities described above and under Impact 4.1-8 in Section 4.1, Fish, would address this socioeconomic effect. See Effect 4.16-5 in Section 4.16 in Volume I of this Final EIS/EIR for more information on this socioeconomic effect.

Master Response F—Response to General Landowner Concerns

During public review of the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR, letters were received from several landowners in the Battle Creek watershed expressing concerns about how Restoration Project construction activities might affect their property or businesses and the measures being proposed by Reclamation and the State Water Board to mitigate these effects. While some landowner concerns can be addressed pursuant to NEPA and CEQA, other landowner concerns need not be addressed under these acts. In general, landowner concerns fall into four categories: requests for mitigation of socioeconomic effects; requests for mitigation of impacts determined to be less than significant in the Draft EIS/EIR; requests to mitigate effects that are not related to the Restoration Project; and requests for additional detail regarding Restoration Project construction. This master response is intended to address these four types of concerns.

Reclamation and the State Water Board recognize that landowners have concerns beyond those associated with environmental impacts and mitigation required pursuant to NEPA and CEQA. Any additional actions to address landowner concerns would be adopted at the discretion of Reclamation and the State Water Board pursuant to their authorities and policies.

Request for Mitigation of Socioeconomic Effects

Both CEQA and NEPA require that the environmental effects of a project be disclosed by the lead agencies. Neither, however, requires that the lead agencies mitigate socioeconomic effects.

CEQA requires that the impacts of the project be described and feasible mitigation measures be identified and discussed to reduce, eliminate, or compensate for significant environmental effects. Analysis under CEQA focuses on effects related to physical changes in the environment. Socioeconomic effects are required to be analyzed and mitigation proposed under CEQA only when they would result in a physical change to the environment. CEQA prohibits treating socioeconomic effects as significant effects on the environment, although a lead agency may consider socioeconomic effects in determining whether a physical change in the environment is significant. This does not appear to be the case in the instances described in comments from landowners.

NEPA requires that socioeconomic effects of the project be disclosed, as they have been in the Draft EIS/EIR and Draft Supplemental EIS/Revised EIR. As under CEQA, NEPA requires that an EIS include a discussion of the means to mitigate adverse environmental effects. However, unlike CEQA, NEPA does not

require federal agencies to carry out mitigation measures that would reduce or eliminate significant environmental impacts. Therefore, a lead agency does not need to adopt mitigation measures contained in an EIS unless agency-specific NEPA procedures require their adoption or the agency commits to implementing them in the ROD.

Any additional actions to address landowner concerns would be adopted at the discretion of Reclamation and the State Water Board pursuant to their authorities and policies.

Requests for Mitigation of Impacts Determined to Be Less than Significant in the Draft EIS/EIR

Several comments were received from local landowners requesting that Reclamation and the State Water Board adopt mitigation for effects found to be less than significant in the Draft EIR/EIS. For example, requests were made to mitigate recreation, aesthetic, and traffic impacts at specific locations determined to be less than significant in the Draft EIS/EIR. The significance of impacts is judged based on significance criteria identified for each issue area in Chapter 4 (Volume I of the Final EIS/EIR). These significance criteria typically incorporate information about the severity, duration, and context of the impact. For instance, aesthetic changes that are not visible to the general public are not usually considered significant, even if they are visible to individuals under certain circumstances. Similarly, when recreation impacts are limited to specific small, locations, but where opportunities continue to exist in nearby areas, the impact is generally considered less than significant and no mitigation is required.

Any additional actions to address landowner concerns would be adopted at the discretion of Reclamation and the State Water Board pursuant to their authorities and policies.

Requests to Mitigate Effects That Are Not Related to the Restoration Project

Some comments from local landowners requested that Reclamation and the State Water Board mitigate effects that preclude the Restoration Project. For instance, requests were made to mitigate the aesthetic affects of PG&E Hydroelectric Project facilities that have existed in the project area since they were constructed in the early 1900s. Under NEPA and CEQA, Reclamation and the State Water Board are required to disclose the impacts associated with implementing the Restoration Project. This is done by comparing environmental conditions under a baseline condition with conditions that would occur if the Restoration Project were constructed and operated, for a wide range of environmental resource areas (e.g., traffic, air quality, water quality, biological resources, aesthetics,

recreation). For the majority of these issue areas, the baseline used in the Draft EIS/EIR was the current environmental setting as defined by CEQA (i.e. current conditions at the time the Notice of Preparation was filed under CEQA [April 14, 2000]).

For certain environmental issue areas, particularly those related to creek flows, a different baseline was used. The current environmental setting includes the Interim Flow Agreement (Agreement 03-20-2554) between Reclamation and PG&E, which has been in effect since 1995. This is a temporary agreement that provides for higher minimum instream flows in Battle Creek to provide favorable conditions for fish in anticipation of implementation of the Restoration Project. This agreement will cease when the Restoration Project is implemented because the Restoration Project is designed to improve the conditions that existed prior to the agreement. Therefore the baseline for issue areas related to flows is the conditions prior to implementing the Interim Flow Agreement. This baseline condition is also defined as the No Action or existing FERC license conditions.

Because effects that predate the baseline, such as the construction of the PG&E Hydroelectric Project, are part of both the baseline condition and the with-project condition, no impacts related to these facilities are identified in this Final EIS/EIR and no mitigation is required.

Request for Additional Detail regarding Restoration Project Construction

Some landowners commented that the level of detail provided in the Draft EIS/EIR was not sufficient to allow them to understand exactly how the Restoration Project will be constructed, especially in the vicinity of their properties. The level of detail provided in the Draft EIS/EIR is adequate and sufficient for the purposes of analyzing the environmental impacts associated with implementing the Restoration Project under NEPA and CEQA; however, it may not provide a level of detail desired by local landowners.

A new set of maps that clearly illustrate specific project elements associated with construction of the Restoration Project (e.g. staging areas, access roads, tailrace connectors) has been included for the Five Dam Removal Alternative discussion in Chapter 3 (Volume I) of this Final EIS/EIR. In addition, Appendix F in Volume II of this Final EIS/EIR presents figures depicting specific project elements at each project site. A key for each figure describes the specific construction activities proposed for each site.

Chapter 3

Comments Received on the Draft Environmental Impact Statement/ Environmental Impact Report and the Draft Supplemental Environmental Impact Statement/ Revised Environmental Impact Report

This chapter presents a list of the comment letters and oral comments that were received by Reclamation and the State Water Board during public review of the 2003 Draft EIS/EIR and the 2005 Draft Supplemental EIS/Revised EIR. Reclamation and the State Water Board received 49 letters commenting on the Draft EIS/EIR and 11 letters on the Draft Supplemental EIS/Revised EIR. In addition, two separate form letters were received on the Draft EIS/EIR. A total of 17 nearly identical form letters were received via U.S. mail and e-mail (Form Letter 1), and 209 form letters were received on identical forms that were filled in by individual commentors (Form Letter 2). A third form letter (Form Letter 3) was received on the Draft Supplemental EIS/Revised EIR. A total of 96 identical copies of Form Letter 3 were submitted by individual commentors. Oral comments on the Draft EIS/EIR were received during the public hearing held in Manton, California, on August 27, 2003.

Chapters 4 through 8 of this volume present copies of the letters and responses to federal agency comments, state agency comments, local agency comments, non-government organization comments, and individuals' comments (Table 3-1). Chapter 9 of this volume presents copies of the form letters and responses to the form letter comments (Tables 3-2, 3-3, and 3-4). Chapter 10 of this volume presents a copy of the meeting transcript and responses to comments received during the public hearing on August 27, 2003 (Table 3-5). The following tables contain a list of all comment letters received on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR for the Restoration Project.

Table 3-1. Federal, State, Local, Non-Government Organizations, and Individual Comment Letters Received on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR

Comment Letter No.	Date	Agency/Organization	Name
Federal Agencies			
Draft EIS/EIR (July 2003)			
F1	09/11/03	Federal Energy Regulatory Commission	George H. Taylor, Chief, Biological Resources Branch
F2	09/26/03	U.S. Environmental Protection Agency, Region IX	Lisa B. Hanf, Manager, Federal Activities Office
F3	10/16/03	U.S. Fish and Wildlife Service	Field Supervisor, Sacramento Fish and Wildlife Office
Draft Supplemental EIS/Revised EIR (February 2005)			
F4	04/19/05	U.S. Environmental Protection Agency, Region IX	Lisa B. Hanf, Manager, Environmental Review Office
F5	04/29/05	U.S. Fish and Wildlife Service	David L. Harlow, Acting Field Supervisor, Sacramento Fish and Wildlife Office
State Agencies			
Draft EIS/EIR (July 2003)			
S1	08/21/03	California Department of Forestry and Fire Protection	Bill Hoehman, Unit Chief, Tehama-Glenn Unit
S2	09/16/03	California Department of Conservation	Erik Vink, Assistant Director
S3	09/16/03	California Department of Transportation	Marcelino Gonzalez, Local Development Review, District 2
S4	10/15/03	California Department of Water Resources	Dwight P. Russell, Chief, Northern District
S5	10/16/03	California Department of Fish and Game	Donald B. Koch, Regional Manager
Draft Supplemental EIS/Revised EIR (February 2005)			
S6	03/21/05	California Department of Transportation	Marcelino Gonzalez, Local Development Review
S7	04/18/05	State Clearing House and Planning Unit	Terry Roberts, Director
S8	04/28/05	California Department of Fish and Game	Harry Rectenwald, Environmental Scientist

Comment Letter No.	Date	Agency/Organization	Name
Local Agencies			
Draft EIS/EIR (July 2003)			
L1	08/20/03	California Farm Bureau Federation	Pam Giacomini, Director, Natural Resources and Commodities
L2	10/07/03	County of Tehama, Board of Supervisors	Bill Borror, Chairman
L3	10/14/03	California Farm Bureau Federation	Pam Giacomini, Director, Natural Resources and Commodities
L4	10/14/03	Tehama County Farm Bureau	Robert A. Williams, President
Draft Supplemental EIS/Revised EIR (February 2005)			
None			
Non-Government Organizations			
Draft EIS/EIR (July 2003)			
NGO1	08/12/03	Mt. Lassen trout Farms, Inc.	Phil Mackey, President
NGO2	08/21/03	Mt. Lassen Trout Farms, Inc.	Phil Mackey, President
NGO3	08/22/03	Friends of the River	Marc E. Christopher
NGO4	08/26/03	Battle Creek Watershed Conservancy	Larry Lucas, Secretary, BCWC Board
NGO5	08/26/03	Pacific Coast Federation of Fishermen's Associations	W.F. "Zeke" Grader, Jr., Executive Director
NGO6	09/01/03	Federation of Fly Fishers, Northern California Council	Robert Ferroggiaro, Vice President, Conservation
NGO7	09/08/03	Associated Students, government affairs	Annie Sherman, Environmental Affairs Commissioner
NGO8	10/13/03	Battle Creek Watershed Conservancy	Sharon Paquin-Gilmore, Watershed Coordinator
NGO9	10/13/03	Warren Quan Oasis Springs Lodge	Warren Quan
NGO10	10/14/03	Associated Students, government affairs	Annie Sherman, Commissioner of Environmental Affairs
NGO11	10/14/03	Central Valley Project Water Association	Robert F. Stockhouse, Manager
NGO12	10/14/03	NorCal Fishing Guides and Sportsmen's Association	WB Scott Ferris
NGO13	10/14/03	Remy, Thomas and Moose, LLP	Osha R. Meserve
NGO14	10/14/03	Sierra Pacific Industries	Steve du Chesne, RPF
NGO15	10/15/03	Outfitters Properties	Kerry L. Burke

Comment Letter No.	Date	Agency/Organization	Name
NGO16	10/15/03	The Nature Conservancy	Mike Roberts
NGO17	10/15/03	Pacific Gas and Electric Company	Todd Johnson, Project Manager
NGO18	10/16/03	Friends of the River	Steven L. Evans, Conservation Director
NGO19	10/16/03	Friends of the River Conservation Coalition	Steven L. Evans, Conservation Director
Draft Supplemental EIS/Revised EIR (February 2005)			
NGO20	03/15/05	The Anglers Committee	The Anglers Committee Board of Directors
NGO21	04/28/05	Outfitters Properties	Kerry L. Burke
NGO22	04/29/05	Friends of the River	Steven L. Evans, Conservation Director
NGO23	04/29/05	Pacific Coast Federation of Fishermen's Associations	W.F. "Zeke" Grader, Jr., Executive Director
NGO24	04/29/05	Pacific Gas and Electric Company	Angela Risdon, License Coordinator
NGO25	05/18/05	Outfitters Properties	Kerry L. Burke
Individuals			
Draft EIS/EIR (July 2003)			
I1	08/05/03		Ed and Sue Shaw
I2	08/11/03	Quail Run Ranch	Horace and Peggy Crawford
I3	09/09/03	River Partners	Dan Efseaff, Restoration Ecologist
I4	09/11/03	M. Kevin McRae, CPA, Inc.	Kevin McRae
I5	09/14/03		Betsy Reifsnider, Bob Schlichting
I6	09/18/03		Dinda Evans
I7	09/20/03		Fatemeh Zafarnejad
I8	09/22/03		Craig Irwin, hydrologist/geomorphologist
I9	09/22/03	Bradley Owens, Watershed Planner	Bradley Owens
I10	09/25/03		Mark Post
I11	10/07/03	Shasta Fly Fishers	Bob Madgic, President
I12	10/09/03		Duane Milleman
I13	10/13/03		Jeanette Alosi
I14	10/15/03		Tom and Angela Kraemer
I15	10/15/03		Kathryn A. Patterson
I16	10/16/03		Jim Dwyer
I17	10/16/03		Suellen Rowlison, RN

Comment Letter No.	Date	Agency/Organization	Name
I18	10/17/03		Patricia Puterbaugh
I19	no date		Traci Sheehan
Draft Supplemental EIS/Revised EIR (February 2005)			
None			

Table 3-2. Form Letter 1 Comments (17 signatories)

No.	Date	Name	Place of Residence
FL1.1	09/04/03	Craig Tucker	Sacramento, CA
FL1.2	09/08/03	Della J. Martin	Redding, CA
FL1.3	09/08/03	Lindsey Pernell	Sacramento, CA
FL1.4	09/10/03	Timothy R. Lasko	Roseville, CA
FL1.5	09/10/03	Jackie Peppard	Auburn, CA
FL1.6	09/10/03	Jacqueline Shulters	Grants Pass, OR
FL1.7	09/11/03	Tim LaVerne	Isla Vista, CA
FL1.8	09/11/03	Nora Marsh	Auburn, CA
FL1.9	09/15/03	Kristin Ford	Sacramento, CA
FL1.10	09/16/03	Clare Broussard	Occidental, CA
FL1.11	09/16/03	Mary Marcus	Guerneville, CA
FL1.12	09/16/03	Milan Cole	Oxnard, CA
FL1.13	09/17/03	Douglas H. Latimer	Redwood City, CA
FL1.14	09/19/03	Robert Lesko	New York, NY
FL1.15	09/26/03	Howard Robinson	Los Angeles, CA
FL1.16	10/9/03	Jeremy Sarrow, Fisheries Biologist	Oakland, CA
FL1.17	10/15/03	Tom and Angela Kraemer	Corning, CA

Table 3-3. Form Letter 2 Comments (209 signatories)

No.	Date	Name	Place of Residence
Form letters with no personal comments			
FL2.1	09/13/03	Yosef Ben-nuh	Concord, CA
FL2.2	09/13/03	Geoff Fattig	Sacramento, CA
FL2.3	09/13/03	Paige Morrison	Oakland, CA
FL2.4	09/13/03	Harry J. Smith	Vacaville, CA
FL2.5	09/13/03	Noah Sochet	Berkeley, CA
FL2.6	09/26/03	Jean H. Danver	Los Altos Hills, CA
FL2.7	09/27/03	Diane Abbey	Sacramento, CA
FL2.8	09/27/03	Amanda Bain	Kelowna, B.C.
FL2.9	09/27/03	Christine DeLaup	Aptos, CA
FL2.10	09/27/03	Dru Devlin	Half Moon Bay, CA
FL2.11	09/27/03	Jill Dodsworth	Santa Clara, CA
FL2.12	09/27/03	Ann Getoor	Los Osos, CA
FL2.13	09/27/03	Sylvia Guzman	Livermore, CA
FL2.14	09/27/03	Martha Graham-Jones	Minden, NV
FL2.15	09/27/03	Meghan Kay	San Rafael, CA
FL2.16	09/27/03	Robert Lambrose	Antioch, CA
FL2.17	09/27/03	Mark Levine	San Juan Bautista, CA
FL2.18	09/27/03	Laurie Manarik	Point Reyes, CA
FL2.19	09/27/03	James McGrew	Hayward, CA
FL2.20	09/27/03	Brian Medernack	Belmont, CA
FL2.21	09/27/03	Keith A. Miller	Oakland, CA
FL2.22	09/27/03	Cheryl Penn	Burlingame, CA
FL2.23	09/27/03	Susan and Jack Pines	Palo Alto, CA
FL2.24	09/27/03	Nikki Rekman	Vancouver, B.C.
FL2.25	09/27/03	Renee Rosenberg	Jamestown, CA
FL2.26	09/27/03	Candi Smith	Oroville, CA
FL2.27	09/27/03	Sage Teyak	Trinidad, CA
FL2.28	09/27/03	Samuel Wong	San Jose, CA
FL2.29	09/27/03	Michael Yantos	San Carlos, CA
FL2.30	09/27/03	*	Pittsburg, CA
FL2.31	09/28/03	Nancy Argo	San Mateo, CA

No.	Date	Name	Place of Residence
FL2.32	09/28/03	Michael Irvin	San Carlos, CA
FL2.33	09/28/03	Sue Macias	Santa Clara, CA
FL2.34	09/28/03	Doug Schmitt	Castro Valley, CA
FL2.35	09/28/03	M. Simon	La Silva, CA
FL2.36	10/10/03	Delila Katz	Orangevale, CA
FL2.37	10/10/03	Douglas E. Wick	Fair Oaks, CA
FL2.38	10/11/03	Andree M. Clark	Fair Oaks, CA
FL2.39	10/11/03	Arnold Garza	Fresno, CA
FL2.40	10/11/03	Rob Grasso	Davis, CA
FL2.41	10/11/03	Barbara J. Keyser	Orangevale, CA
FL2.42	10/11/03	Jim Lewis	West Sacramento, CA
FL2.43	10/11/03	Alex R. Maurizi	Sacramento, CA
FL2.44	10/11/03	Barbara S. Maurizi	Sacramento, CA
FL2.45	10/11/03	Brian McIntyre	Rancho Cordova, CA
FL2.46	10/11/03	Scott Peterson	Carmichael, CA
FL2.47	10/11/03	Barbara Schrier	Orangevale, CA
FL2.48	10/11/03	Deborah Stafford	Long Beach, CA
FL2.49	10/11/03	Ari Thomas	Carmichael, CA
FL2.50	10/12/03	Rebecca Anaya	Oakland, CA
FL2.51	10/12/03	Haley Lobaugh	Placerville, CA
FL2.52	No date	Dave E. Alcala	Santa Cruz, CA
FL2.53	No date	Dave Anderson	Citrus Heights, CA
FL2.54	No date	Julie Anderson	Seattle, WA
FL2.55	No date	Jerome Bader	Elk Grove, CA
FL2.56	No date	Lisa Beckstead	Reno, NV
FL2.57	No date	Tod Bedrosian	Sacramento, CA
FL2.58	No date	David Bloom	Belmont, CA
FL2.59	No date	Merrill Bobele	El Granada, CA
FL2.60	No date	Norman Bookstein	Kensington, CA
FL2.61	No date	Gregory Brown	Fair Oaks, CA
FL2.62	No date	Jared Brown	Fair Oaks, CA
FL2.63	No date	Daniel Burke	Sacramento, CA
FL2.64	No date	Glenda Burkhead	Burlingame, CA
FL2.65	No date	Tim Burns	San Jose, CA

No.	Date	Name	Place of Residence
FL2.66	No date	Frank Busse	Orinda, CA
FL2.67	No date	Gregg Butterfield	Thousand Oaks, CA
FL2.68	No date	Duncan Campbell	Menlo Park, CA
FL2.69	No date	Ross Campbell	San Mateo, CA
FL2.70	No date	Raymond Carig	Mountain View, CA
FL2.71	No date	Nicholas Carpenter	Rancho Cordova, CA
FL2.72	No date	Lesley Carriker	Elk Grove, CA
FL2.73	No date	David Cavazos	Carson, CA
FL2.74	No date	Tricia Chong	Elk Grove, CA
FL2.75	No date	Malinda Cirimele	Roseville, CA
FL2.76	No date	Candice Clark	Fair Oaks, CA
FL2.77	No date	R. L. Clark	Arcata, CA
FL2.78	No date	Allen Coe	Sacramento, CA
FL2.79	No date	Chris Conard	Sacramento, CA
FL2.80	No date	Victoria Contreras-Alcala	Palo Alto, CA
FL2.81	No date	Erin Cosgrove	Oakland, CA
FL2.82	No date	Cathy Crossgrove	Redwood City, CA
FL2.83	No date	Hien T. Dao	San Jose, CA
FL2.84	No date	Aimee Day	Dixon, CA
FL2.85	No date	Brynna Day	Dixon, CA
FL2.86	No date	Anthony Ehret	San Rafael, CA
FL2.87	No date	Vince Escobar	Folsom, CA
FL2.88	No date	Ebi Fini	Gold River, CA
FL2.89	No date	A. Gamez	Castro Valley, CA
FL2.90	No date	Juan M. Garcia	Elk Grove, CA
FL2.91	No date	Janice Gardner-Loster	San Leandro, CA
FL2.92	No date	Steven Granlund	Fair Oaks, CA
FL2.93	No date	Thelma Granlund	Fair Oaks, CA
FL2.94	No date	Michael Hamman	San Francisco, CA
FL2.95	No date	Laurie Hart	Menlo Park, CA
FL2.96	No date	Dustin Holm	Sacramento, CA
FL2.97	No date	Christina Kemp	Santa Cruz, CA
FL2.98	No date	Ruslan Kisilev	Sacramento, CA
FL2.99	No date	Ruvim Kisilev	Sacramento, CA

No.	Date	Name	Place of Residence
FL2.100	No date	Linda Kreitz	Alameda, CA
FL2.101	No date	Kimya Lambert	Sacramento, CA
FL2.102	No date	William Lampe	Antelope, CA
FL2.103	No date	Latisha Landis	St. Helena, CA
FL2.104	No date	Guadalupe P. Levine	San Juan Bautista, CA
FL2.105	No date	Julie Litwin	Oakland, CA
FL2.106	No date	Curtis Loeb	Pleasanton, CA
FL2.107	No date	John Martin	Rancho Cordova, CA
FL2.108	No date	Kathi Minden	Burlingame, CA
FL2.109	No date	David Minnis	Newark, CA
FL2.110	No date	Ken Moore	Aptos, CA
FL2.111	No date	Starlight Murray	Sacramento, CA
FL2.112	No date	Barbara Nobriga	Sacramento, CA
FL2.113	No date	Herb Nobriga	Sacramento, CA
FL2.114	No date	Doug Parkes	Palo Alto, CA
FL2.115	No date	Olga Pastuszynski	San Bruno, CA
FL2.116	No date	Andy Phillips	San Leandro, CA
FL2.117	No date	Robert Pimentel	Fair Oaks, CA
FL2.118	No date	Liese Rapozo	Pacifica, CA
FL2.119	No date	Tom Rider	Petaluma, CA
FL2.120	No date	Delia Rios	San Jose, CA
FL2.121	No date	Judy Robinson	Moraga, CA
FL2.122	No date	Rob Rosenberg	Jamestown, CA
FL2.123	No date	Joyce Schwithe	Nevada City, CA
FL2.124	No date	Jessica Silva	Dixon, CA
FL2.125	No date	Barbara Sokoloski	Livermore, CA
FL2.126	No date	Walter Sokoloski	Livermore, CA
FL2.127	No date	Carl Somppi	Alameda, CA
FL2.128	No date	Lisa Steadman	San Mateo, CA
FL2.129	No date	Molly Stephens	Davis, CA
FL2.130	No date	Drew Stevens	Yountville, CA
FL2.131	No date	Kristina Suber	Sacramento, CA
FL2.132	No date	Richard Sukhu	Sacramento, CA
FL2.133	No date	Doug Tallman	San Mateo, CA

No.	Date	Name	Place of Residence
FL2.134	No date	Serena Thomas	Roseville, CA
FL2.135	No date	Amber T. Thompson	Antelope, CA
FL2.136	No date	Cody W. Thompson	Antelope, CA
FL2.137	No date	Pamela Ungelbach	Campbell, CA
FL2.138	No date	David Waite	Mt. Shasta, CA
FL2.139	No date	M. Walker	Palo Alto, CA
FL2.140	No date	Mike Williams	Fair Oaks, CA
FL2.141	No date	William Wolff	Folsom, CA
FL2.142	No date	Jerome Wrobleski	Sunnyvale, CA
FL2.143	No date	Y. *	Belmont, CA
FL2.144	No date	Ronald *	Chapala, Jalisco, Mexico
FL2.145	No date	Austen M. Takechi*	Gold River, CA
FL2.146	No date	Robert *	Carmichael, CA
FL2.147	No date	Peter Donahue*	Menlo Park, CA
FL2.148	No date	Judy *	Pacifica, CA
Form Letters with Personal Comments			
FL2.149	09/13/03	Nicole L. Aghazorian	Stockton, CA
FL2.150	09/13/03	Bruce Becker	Castro Valley, CA
FL2.151	09/13/03	Nick K. C.*	Stockton, CA
FL2.152	09/13/03	Thomas Hughes	San Francisco, CA
FL2.153	09/13/03	Debbie Melahn	Sparks, NV
FL2.154	09/13/03	Margrit Petrofsky	Los Gatos, CA
FL2.155	09/14/03	Gordon Beaker	Kensington, CA
FL2.156	09/15/03	Meadow Barr	Mt. Shasta, CA
FL2.157	09/27/03	Janet B. Cook	Redwood City, CA
FL2.158	09/27/03	Kenneth Howell	Montara, CA
FL2.159	09/27/03	Kevin Jack	Napa, CA
FL2.160	09/27/03	King Lamadora	Daly City, CA
FL2.161	09/27/03	Dylan Morrison	San Francisco, CA
FL2.162	09/27/03	Ayako K Nagano	Berkeley, CA
FL2.163	09/27/03	Michael Riorden	Soquel, CA
FL2.164	09/27/03	Eric Stromme	Sitka, AK
FL2.165	09/27/03	Wendy Tanowitz	Ross, CA
FL2.166	09/27/03	Susan Tolin	Pacifica, CA

No.	Date	Name	Place of Residence
FL2.167	09/27/03	Lynn Tringali	San Jose, CA
FL2.168	09/28/03	Robert Goff	San Rafael, CA
FL2.169	09/28/03	G. Hamada	Palo Alto, CA
FL2.170	10/11/03	Walter Hatfield	Fair Oaks, CA
FL2.171	10/11/03	Babette Henry-Tasker	Rancho Cordova, CA
FL2.172	10/11/03	Ali H. Jafari	Sacramento, CA
FL2.173	10/11/03	Madison Kilian (Age 9)	Rocklin, CA
FL2.174	10/12/03	Parker Engquist (Age 6)	Fair Oaks, CA
FL2.175	10/12/03	Tyler Engquist (Age 8)	Fair Oaks, CA
FL2.176	10/12/03	Greg Ungelbach	Campbell, CA
FL2.177	10/13/03	Jennifer Bloome	Auburn, CA
FL2.178	10/13/03	David G. Graves	Sacramento, CA
FL2.179	10/03	Lorraine L.*	Sacramento, CA
FL2.180	No date	Shirley Arington	Sunnyvale, CA
FL2.181	No date	Shannon Bigelson	Fair Oaks, CA
FL2.182	No date	Eileen Bouden	San Jose, CA
FL2.183	No date	James A. Bryant, Jr.	Roseville, CA
FL2.184	No date	Allen Delay	Livermore, CA
FL2.185	No date	Peter Drekmeier	Palo Alto, CA
FL2.186	No date	Joe Geddes	
FL2.187	No date	Robert Godwin	Cameron Park, CA
FL2.188	No date	Eddy Helmer	Antelope, CA
FL2.189	No date	Alyssa Higgins (and Jessica Heskin)	Rancho Cordova, CA
FL2.190	No date	Jessica Howard	Shingle Springs, CA
FL2.191	No date	Penny Howard	Shingle Springs, CA
FL2.192	No date	Meg M. Johnson	Sacramento, CA
FL2.193	No date	Sharin Joy	San Francisco, CA
FL2.194	No date	Marsha Kilian	Rocklin, CA
FL2.195	No date	Christa Lindsey	Rancho Cordova, CA
FL2.196	No date	Jonathan McClelland	Santa Rosa, CA
FL2.197	No date	Julia McIv*	Sacramento, CA
FL2.198	No date	Linda Mollenhauer Me*	Sebastopol, CA
FL2.199	No date	Candy Reeves	Sacramento, CA

No.	Date	Name	Place of Residence
FL2.200	No date	Isabel M. Rios	San Jose, CA
FL2.201	No date	Jessica Ryan	Rancho Cordova, CA
FL2.202	No date	Ruby Sirmons	Rancho Cordova, CA
FL2.203	No date	Michael D. Sowe*	Soquel, CA
FL2.204	No date	Margie Tomenko	Carmichael, CA
FL2.205	No date	Linda Vance	Emeryville, CA
FL2.206	No date	Walter Washington	Minden, NV
FL2.207	No date	Pat Watters	San Mateo, CA
FL2.208	No date	Richard Weiss	Oakland, CA
FL2.209	No date	Shelley Wrigley	Roseville, CA

* The handwriting on this form letter was difficult to read. This may not be the correct spelling of this name.

Table 3-4. Form Letter 3 Comments (96 signatories)

No.	Date	Name	Place of Residence
FL3.1	03/22/05	Rebecca Ginney	Chico, CA
FL3.2	04/05/05	Jessica R. Massie	Tehama, CA
FL3.3	04/05/05	Shandin Rudesill*	Chico, CA
FL3.4	04/06/05	Judy Fox	Chico, CA
FL3.5	04/07/05	Kathleen Mackay	Chico, CA
FL3.6	04/09/05	Rick Staychock	Chico, CA
FL3.7	04/10/05	Bryan Balog	Redding, CA
FL3.8	04/11/05	Jacobb R. Burgess	Redding, CA
FL3.9	04/11/05	John R. Dietz	Redding, CA
FL3.10	04/11/05	Eric Fields	Redding, CA
FL3.11	04/11/05	Greg Hector	Redding, CA
FL3.12	04/11/05	Terry L. Jepsen	Redding, CA
FL3.13	04/11/05	Greg Kennedy	Shasta Lake, CA
FL3.14	04/11/05	Kris Kennedy	Shasta Lake, CA
FL3.15	04/11/05	Martha MacDowell	Redding, CA
FL3.16	04/11/05	Kathy Matthewson	Redding, CA
FL3.17	04/11/05	Duane Milleman	Redding, CA
FL3.18	04/11/05	Justin Miller	Redding, CA
FL3.19	04/11/05	Mike Moor	Redding, CA
FL3.20	04/11/05	Chris Parsons	Redding, CA
FL3.21	04/11/05	Patrick Pendergast	Anderson, CA
FL3.22	04/11/05	Thomas W. Watts	Redding, CA
FL3.23	04/11/05	Cory Williams	Redding, CA
FL3.24	04/12/05	Michael Caranci	Redding, CA
FL3.25	04/15/05	Brad Cooke	Chico, CA
FL3.26	04/20/05	Tasha Ahlstrand	Chico, CA
FL3.27	04/20/05	Jennifer Arbuckle	NA
FL3.28	04/20/05	Hailie Barnes	Chico, CA
FL3.29	04/20/05	Callie-Jane Burch	Oroville, CA
FL3.30	04/20/05	Chris Chandler	Chico, CA
FL3.31	04/20/05	Cheri Chastain	Chico, CA
FL3.32	04/20/05	Jonathan Clark	Napa, CA
FL3.33	04/20/05	Theresa L. Fagouri	Chico, CA

No.	Date	Name	Place of Residence
FL3.34	04/20/05	Bryan Gabbard	Chico, CA
FL3.35	04/20/05	Della J. Martin	Chico, CA
FL3.36	04/20/05	Kristina Miller	Chico, CA
FL3.37	04/20/05	Josh Narr*	Chico, CA
FL3.38	04/20/05	Lori J. Narr	Chico, CA
FL3.39	04/20/05	Anthony Sudderte	Chico, CA
FL3.40	04/21/05	Jennifer Patten	Chico, CA
FL3.41	04/21/05	Natalie Robertson	Chico, CA
FL3.42	04/21/05	Tiffany Yast	NA
FL3.43	04/22/05	Ronald L. Ramsey	Redding, CA
FL3.44	04/25/05	Brigitte Bordenave	Chico, CA
FL3.45	04/25/05	Kimberly C. Miller	Chico, CA
FL3.46	04/25/05	Becca Schwalm	Chico, CA
FL3.47	04/25/05	Erin K. Shaw	Chico, CA
FL3.48	04/26/05	Carolyn Capriato	Chico, CA
FL3.49	04/26/05	Alicia Perez	Chico, CA
FL3.50	04/26/05	Diana Rector	Chico, CA
FL3.51	04/27/05	Samual Ready	Cohasset, CA
FL3.52	04/28/05	Charito F. Abbott	Chico, CA
FL3.53	04/28/05	Charmae Bartlett	Chico, CA
FL3.54	04/28/05	Joel Castle	Chico, CA
FL3.55	04/28/05	Dave Elke	Chico, CA
FL3.56	04/28/05	Stephen Fellows	Chico, CA
FL3.57	04/28/05	Jodea Foster	Chico, CA
FL3.58	04/28/05	Alga Gadael	Chico, CA
FL3.59	04/28/05	Mari Garrido	Chico, CA
FL3.60	04/28/05	Monique Gilardi	Chico, CA
FL3.61	04/28/05	Janean Greenway	Chico, CA
FL3.62	04/28/05	Christopher Haro	Chico, CA
FL3.63	04/28/05	Jeremy Harris	Chico, CA
FL3.64	04/28/05	Bonner Hart*	Paradise, CA
FL3.65	04/28/05	Marilyn H. Hiestand	Chico, CA
FL3.66	04/28/05	R. Travas Hunter	Chico, CA
FL3.67	04/28/05	*	Vacaville, CA

No.	Date	Name	Place of Residence
FL3.68	04/28/05	Gerald J. Krug, Jr.	Chico, CA
FL3.69	04/28/05	Piper Lacy	Encinitas, CA
FL3.70	04/28/05	Don Mackay	Ventura, CA
FL3.71	04/28/05	Doug Mackay	South Lake Tahoe, CA
FL3.72	04/28/05	Jordan Manfredi	Chico, CA
FL3.73	04/28/05	Dara McKinley	Chico, CA
FL3.74	04/28/05	Arlene Merchant	Chico, CA
FL3.75	04/28/05	Michael M. Noble	Chico, CA
FL3.76	04/28/05	Andrew Olsen	Chico, CA
FL3.77	04/28/05	Kayla Rinehart	Chico, CA
FL3.78	04/28/05	Carmen Rios-Ramirez	San Rafael, CA
FL3.79	04/28/05	Adam Samorano	Chico, CA
FL3.80	04/28/05	Stephanie Shirar	Vacaville, CA
FL3.81	04/28/05	Margaret F. Smith	Chico, CA
FL3.82	04/28/05	Pamela Tompkins	Paradise, CA
FL3.83	04/28/05	Christina Vish	Chico, CA
FL3.84	04/29/05	David G. Graves	Sacramento, CA
FL3.85	04/29/05	Peter K. Kamau	Sacramento, CA
FL3.86	04/29/05	Peter T. Ferenbach	Berkeley, CA
FL3.87	04/29/05	Kelly Pedern*	Sacramento, CA
FL3.88	04/29/05	S. Craig Tucker	Sacramento, CA
FL3.89	05/03/05	Cheryl Walt	McKinleyville, CA
FL3.90	05/12/05	Dan C. Massie, Jr.	Tehama, CA
FL3.91	No date	Marylyn Carroll	Paradise, CA
FL3.92	No date	Harry May	Chico, CA
FL3.93	No date	Susanne Miller	Redding, CA
FL3.94	No date	Mira Talbott-Pore	Chico, CA
FL3.95	No date	Sue Taylor	Shasta, CA
FL3.96	No date	Richard J. Wemette	Chico, CA

NA = information not available

* The handwriting on this form letter was difficult to read. This may not be the correct spelling of this name.

Table 3-5. Public Hearing Comments, Manton Grange, Manton, California (August 27, 2003)

Organization	Name
Comments from Transcript	
Central Valley Water Project Association	Serge Birk
Battle Creek Watershed Conservancy	Larry Lucas
Mt. Lassen Trout Farms, Inc	Brad Carter
Friends of the River	Chris B
Community Member of Manton	Regina Bell
Community Member of Manton	Bob Lee
NorCal Fishing Guides	Scott Ferris
Quail Ranch	Horace Crawford
Quail Run Ranch	Martha Schraml
Metropolitan Water District of Southern California	Walt Hoyle
Outfitter Properties	Kerry Burke
Speaker Card Comments	
Mt. Lassen Trout Farms Inc.	Brad Carter for Phil Mackey
Community Member of Manton	Bob Lee
Bluff Springs Ditch, Battle Creek Watershed Conservancy	Donna Shandley

Chapter 4
Federal Agency Comments

This section contains copies of the comment letters received from federal agencies; Table 4-1 lists those letters. Each letter is followed by responses to the comments presented in each letter. Responses to comments are numbered individually in sequence, corresponding to the numbering assigned to comments in each comment letter. The responses are prepared in answer to the full text of the original comment.

Table 4-1. Federal Agency Comments Received on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR

Comment Letter No.	Date	Agency/Organization	Name
Draft EIS/EIR (July 2003)			
F1	09/11/03	Federal Energy Regulatory Commission	George H. Taylor, Chief, Biological Resources Branch
F2	09/26/03	U.S. Environmental Protection Agency, Region IX	Lisa B. Hanf, Manager, Federal Activities Office
F3	10/16/03	U.S. Fish and Wildlife Service	Field Supervisor, Sacramento Fish and Wildlife Office
Draft Supplemental EIS/Revised EIR (February 2005)			
F4	04/19/05	U.S. Environmental Protection Agency, Region IX	Lisa B. Hanf, Manager, Environmental Review Office
F5	04/29/05	U.S. Fish and Wildlife Service	David L. Harlow, Acting Field Supervisor, Sacramento Fish and Wildlife Office

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

OFFICE OF ENERGY PROJECTS

Project No. 1121--California
Battle Creek Project
Pacific Gas and ~~Electric~~ Company

SEP 11 2003

Ms. Mary Marshall
U.S. Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Mr. James Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Subject: Comments on draft Environmental Impact Statement

Dear Ms. Marshall and Mr. Canaday:

Thank you for the opportunity to review the draft Environmental Impact Statement/Environmental Impact Review (EIS/EIR) dated July 2003. The document was developed in conformance with the National Environmental Policy Act requirements in order to better understand the impacts associated with the implementation of a proposed stream restoration project that would reestablish approximately 42 miles of salmon and steelhead habitat in Battle Creek, plus an additional 6 miles of tributary habitat. The EIS/EIR examined four additional alternatives as well. Each alternative, except the No Action Alternative, would affect the Battle Creek Hydroelectric Project (FERC No. 1121).

Staff have reviewed the draft EIS/EIR and found it to be comprehensive and well reasoned. The draft EIS/EIR adequately meets the Commission needs regarding any subsequent license amendment application pertaining to the restoration project. No additional comments are offered at this time.

If you have any questions regarding this letter, please contact Mr. T.J. LoVullo at (202) 502-8900.

Sincerely,

George H. Taylor

George H. Taylor
Chief, Biological Resources Branch
Division of Hydropower Administration
and Compliance

c: Mr. Todd Johnson
Pacific Gas and Electric Company
Mail Code N11D
P.O. Box 770000
San Francisco, CA 94177

Comment Letter F1—Federal Energy Regulatory Commission, George H. Taylor, Chief, Biological Resources Branch (September 11, 2003)

Response to Comment F1-1

This comment has been noted. Reclamation and the State Water Board thank the reviewer for support of the Five Dam Removal Alternative and the comment that the Draft EIS/EIR is well reasoned and comprehensive and adequately addresses the license amendment needs of the Federal Energy Regulatory Commission.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 19, 2003

Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Subject: Draft Environmental Impact Statement (DEIS) for the Battle Creek Salmon and Steelhead Restoration Project, Tehama and Shasta Counties, California (CEQ #030333)

Dear Ms. Marshall:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act.

The DEIS analyses six alternatives and identifies the Five Dam Removal Alternative as the Preferred Alternative. Our review found that the DEIS sufficiently addresses the environmental impacts of that alternative. Accordingly, we have rated the Preferred Alternative as Lack of Objections (LO). EPA's rating and a summary of our comments will be published in the Federal Register. Please see the enclosed Rating Factors for a description of EPA's rating system.

EPA supports this project to restore fisheries habitat, and commends the Bureau of Reclamation and its cooperating agencies in developing this comprehensive and detailed DEIS. We have several suggestions for the Final EIS to strengthen and clarify proposed mitigation commitments. Please see the enclosed Detailed Comments for these recommendations.

We appreciate the opportunity to review this DEIS. When the Final EIS is released for public review, please send two copies to the address above (mail code: CMD-2). If you have any questions, please contact me or David P. Schmidt, the lead reviewer for this project. David can be reached at 415-972-3792 or schmidt.davidp@epa.gov.

Sincerely,

Lisa B. Hanf, Manager
Federal Activities Office
Cross Media Division

Enclosures:
EPA's Detailed Comments
Summary of EPA Rating Definitions

cc: Jim Canaday, California State Water Resources Control Board

EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR THE BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT, SEPTEMBER 19, 2003

Mitigation of Fine Sediment Release During Dam Removal

The DEIS discusses the potentially significant negative impact on fish eggs, larvae, and reproductive success due to removing dams and the resultant release of currently stored fine sediment to the stream channel. Mitigation includes removing dams during low-flow conditions (July - October). This would allow high flows during winter storms to mobilize and transport the fine sediments, thereby minimizing deposition in clean gravel substrates which are needed by fish and other aquatic organisms.

Recommendation:

The Final EIS should include an estimate of sediment volumes in each dam and the frequencies of flows that would move most of those sediments out of the system. If the flows needed occur only once every ten years, then additional mitigation efforts such as a staged removal of the dams might be warranted to prevent the sediment from entering all at once, and then remaining until a flood year. A large slug of fines sitting in the stream might concretize and be unaffected by flood flows.

Mitigation of Accidental Spills of Petroleum Products

The DEIS discussed the potentially significant negative impact on fish mortality and growth rates from an accidental petroleum spill. Mitigation measures described in the document to reduce those impacts to less than significant require contractors to develop and implement toxic materials control and spill response plans.

Recommendation:

The FEIS should provide additional detail on the mitigation measures that will be required of contractors. We recommend restricting the volume of petroleum products allowed on-site to the volume that can be addressed by the control and spill response facilities/plans.

Mitigation of Construction Activities

The DEIS discusses the potentially significant negative impact on fish eggs, larvae, and reproductive success as a result of increased sedimentation due to construction activities. Mitigation measures would require contractors to develop and implement a vegetative protection plan and an erosion and sediment control plan.

Recommendation:

Consideration should be given to scheduling construction outside of the spawning seasons of most fish.

Adaptive Management Plan

The Adaptive Management Plan (AMP) of the Five Dam Removal Alternative (i.e., the Preferred Alternative) includes a detailed facility monitoring plan, the transfer of water rights from PG&E to the California Department of Fish and Game, a Water Acquisition Fund for future purchases of additional instream flow releases in Battle Creek, and an Adaptive Management Fund to implement actions developed under the AMP.

The Preferred Alternative is the only alternative that includes this comprehensive AMP. In doing so, it provides greater benefits than other alternatives. For example, the Preferred Alternative is the only action alternative without an adverse effect on power generation and economics (p. 4.16-16). The is due mainly to the cost-sharing agreements in the AMP. The comparative merits of the alternatives considered in detail should be clear (40 CFR 1502.14(b)).

Recommendation:

The FEIS should clarify why the AMP with its cost-sharing agreements is only proposed for the Preferred Alternative and is not a component of any of the other alternatives.

Cumulative Air Quality Impacts

The Preferred Alternative is estimated to decrease the average annual energy production of the Battle Creek Hydroelectric Project by 68,720 megawatt-hours (MWh), likely increasing the operation of fossil-fueled generating resources (p. 4.16-16). The DEIS also states that if the total electricity generating capacity of the Battle Creek Hydroelectric Project were replaced with fossil-fueled resources, greenhouse gas emissions could potentially increase by almost 35,000 metric tons of carbon per year (p. 4.16-11).

The Air Quality section of the DEIS indicates that the reduction in generated power at the power plants would be made up by other existing power plants that have gone through air quality permitting processes or new power plants that would be subject to a new source permitting process and would be cleaner than existing power plants (p. 4.11-12). This statement seems to imply, in contradiction to the information cited above, that there will be no cumulative impacts on air quality from the reduction in generated power of the Battle Creek Project.

Recommendation:

The Cumulative Impacts portion of the Air Quality section (4.11) should be in agreement with later references to the potential increase in greenhouse gas emissions. If possible, a quantitative estimation of those impacts could demonstrate that they are insignificant.

Permitting Requirements Under the Clean Water Act

Chapter 5 of the DEIS does a good job of describing consultation/coordination efforts that have been accomplished or are planned for the Restoration Project, including requirements under Sections 401 (Water Quality Standards), 402 (National Pollutant Discharge Elimination System) and 404 (Dredge and Fill Permits) of the Clean Water Act (CWA).

Recommendation:

The FEIS should include the current status of all permits required under the CWA and other Federal, State and local statutes and regulations.

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

Comment Letter F2—U.S. Environmental Protection Agency, Region IX, Lisa B. Hanf, Manager, Federal Activities Office (September 19, 2003)

Response to Comment F2-1

This comment has been noted. Reclamation and the State Water Board thank EPA for reviewing the Draft EIS/EIR and for EPA's rating as Lack of Objections for the Preferred Alternative (i.e., the Five Dam Removal Alternative).

Response to Comment F2-2

This comment has been noted. Reclamation and the State Water Board thank the reviewer for support of the Five Dam Removal Alternative and the statement that Reclamation has developed a comprehensive and detailed Draft EIS/EIR. Detailed comments presented in this letter are addressed below.

Response to Comment F2-3

Reclamation evaluated potential sediment impacts in their report *Sediment Impact Analysis of the Removal of Coleman, South, and Wildcat Diversion Dams on South and North Fork Battle Creeks* prepared in April 2001. Much of the sediment that would be released from behind removed dams is large gravel and cobble material. Consequently, the potential for concretization of the channel bed as a result of released fines is considered highly unlikely. Consequently, no additional mitigation is required.

Trapped sediment volumes behind Wildcat Diversion Dam, South Diversion Dam, and Coleman Diversion Dam are, respectively, 5,000, 30,000, and 28,000 yd^3. Minimum, mean, and maximum average daily flows during a wet water year (1983) were 308, 834, and 6,390 cfs, respectively. During a normal water year (1989), the minimum, mean, and average daily flows were 187, 440, and 4,620 cfs, respectively. The minimum, mean, and maximum average daily flows decreased to 180, 236, and 524 cfs during a dry water year (1977). For additional information and analysis on potential sediment impacts please refer to Reclamation's 2001 document (Reclamation 2001b).

Adverse effects of sediment movement will be minimized to some extent at Coleman and South Diversion Dams with the excavation of pilot channels in the sediment that has collected behind the dams. Excess sediment will be placed along the stream banks to be distributed downstream during large flood events. The excavated pilot channels would minimize initial sediment movement but

would not be stable channels (i.e., sediment would move at higher flows). Reclamation's sediment study suggests the excess sediment will be released slowly from bank storage during high flow events (Reclamation 2001b). This is opposed to flood events in this response. The study also suggests that much of the sediment is large gravel and cobble material that would slowly migrate downstream in a very normal sediment transport process. Sediment release in the first couple of years after dam decommissioning is likely to be the greatest fraction of the stored sediments.

Sediment transport will be monitored according to the conditions of the water quality permit issued by the Regional Water Quality Control Board (RWCQB) to demonstrate that attainment of Basin Plan standards are consistent with the Clean Water Act. In addition, sediment transport will also be monitored in accordance with the Sediment Monitoring Plan in Section VI of the AMP included as Appendix C in Volume II of this Final EIS/EIR. Additional information on sediment uncertainties is included in the AMP. Minimization and mitigation measures that will be in place to reduce the potential impacts from sediment are further discussed in Section 4.4, Water Quality, in Volume I of this Final EIS/EIR.

Response to Comment F2-4

Before Restoration Project construction begins, a spill prevention and countermeasure plan (SPCP) will be prepared that includes strict on-site handling rules to keep construction and maintenance materials out of the drainages and waterway (see Environmental Commitments described on pages 3-68 to 3-77 in Chapter 3, Volume I of this Final EIS/EIR). EPA's recommendation to restrict the volume of petroleum products allowed on site to only the volume of products that can be addressed by the SPCP has been incorporated as an environmental commitment in this Final EIS/EIR.

These measures, which prevent contamination, clean up spills, provide staging and storing areas, and minimize equipment operations in moving water, will be incorporated into the project design as conditions of the DFG Section 1600 streambed alteration agreement. Specific requirements for reducing impacts on stream habitat will be coordinated with DFG during the agreement process.

The volume of petroleum products allowed at the Battle Creek project sites is expected to be minimal. The construction contractors will be advised to limit the amount of petroleum products allowed on site to only the amount necessary for proposed construction activities. All petroleum products that are brought on site will be addressed by the SPCP. All RWCQB rules and regulations pertaining to accidental spills will also be observed.

Response to Comment F2-5

Mitigation measures to minimize increased sedimentation attributable to construction activities include scheduling construction during the dry season (July to October) (see Mitigation Measures for Impact 4.1-2 in Section 4.1 in Volume I of this Final EIS/EIR). The biological opinion issued by NOAA Fisheries for the Restoration Project will stipulate that all in-water work will occur during this time.

Although the dry season is not considered the typical spawning period for steelhead and fall-/late fall–run Chinook salmon populations in Battle Creek, it does overlap with the spawning period for spring- and winter-run Chinook salmon. As winter-run Chinook salmon are not currently spawning in the project area, they are not expected to be affected by construction activities. Exclusionary measures will be in place to block all fish from the project area during construction. These blockages will minimize the potential for any impacts on spawning fish while construction activities are occurring.

Response to Comment F2-6

It is true that the current AMP was developed for the Proposed Action only. However, as stated under Adaptive Management Plan in Chapter 2, "Purpose and Need, Project Description, and Project Background," of Volume I, similar adaptive management plans would be developed for the other alternatives in the event that the proposed action is not selected. The Five Dam Removal Alternative would not necessarily provide greater benefits associated with the AMP over the other alternatives. If an alternative other than the Five Dam Removal Alternative is selected as the proposed action, the new proposed action would also include cost-sharing agreements as a component in the AMP

The AMP is available only to the Five Dam Removal Alternative because of the manner in which that alternative was developed. PG&E, DFG, NOAA Fisheries, and USFWS negotiated an agreement to pursue the Restoration Project, which was later selected as the Preferred Alternative. The AMP is a requirement of the 1999 MOU entered into by Reclamation, USFWS, NOAA Fisheries, DFG, and PG&E as part of that agreement (see Appendix A in Volume II of this Final EIS/EIR). Cost-sharing agreements for other alternatives have not been offered by PG&E. Therefore, that provision was not included in those alternatives.

The AMP refers to a separate facilities monitoring plan but does not include that plan because the facilities monitoring plan is part of the proposed action and is not part of the AMP.

Response to Comment F2-7

The Draft EIS/EIR states under Cumulative Impacts in Section 4.11, Air Quality, that any reduction in generated power at PG&E's powerhouses would be made up by another existing power plant connected on the power grid, where these power plants would have gone through stringent air quality regulations and permitting processes pursuant to the Federal Clean Air Act (42 USC 7401-7661) and to California statutes and regulations. In addition, any new power plants that would be constructed would be subject to a new source permitting process. Consequently, it was determined that the proposed project would not result in any adverse cumulative air quality impacts.

Although the replacement of power from fossil-fueled resources potentially could result in the generation of 35,000 metric tons of carbon per year, as stated under the Environmental Consequences discussion in Section 4.11, Air Quality, in Volume I of this Final EIS/EIR, existing regulations and permitting processes will mitigate these emissions so that, cumulatively, there is no adverse impact. Any fossil-fueled resource that is used in the replacement of power is subject to various operating permits that stipulate the allowable process rates, fuel usage, and emissions that may be generated by that facility. With these permits in place, the facility may not generate emissions above the permitted level. While a facility may increase its emissions in the replacement of power, it would not increase emissions to levels above the permitted capacity. If a facility were to exceed its emissions quota, it would be required to obtain a variance or purchase offsets to mitigate these emissions violations. Additionally, the power facilities each would be subject to the applicable local air district's new source review rule, which further regulates the operation of these facilities and provides a means to ensure that a facility's operation does not exceed the region's emissions inventory as part of the applicable clean air plan. No changes were made for this Final EIS/EIR.

Response to Comment F2-8

The following permits are required for the Restoration Project:

- Section 404 of the Clean Water Act,
- Section 402 of the Clean Water Act, National Pollutant Discharge Elimination System permit,
- Section 401 of the Clean Water Act, Water Quality Certification,
- Section 7 of the federal Endangered Species Act,
- Section 1602, Streambed Alteration Agreement, and
- Section 106 of the National Historic Preservation Act.

These permits are ongoing and will be completed prior to award of the construction contract. These permits along with other relevant regulations are discussed in Chapter 5 in Volume I of this Final EIS/EIR.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

Memorandum

To: Regional Director, Mid-Pacific Region, U.S. Bureau of Reclamation, Sacramento, California

From: Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Comments on the Draft Environmental Impact Statement/Environmental Impact Report for the Battle Creek Salmon and Steelhead Restoration Project, Shasta and Tehama Counties, California

The Fish and Wildlife Service (Service) has reviewed the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project) (USBR and SWRCB 2003), and thanks the Bureau of Reclamation (Reclamation) for its attention to previous comments and recommendations during Restoration Project planning. This memorandum transmits the Service's comments on the Restoration Project's Draft EIS/EIR, which are provided in accordance with section 1503.2 of the Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA), and have been coordinated with the Service's Red Bluff Fish and Wildlife Office and Coleman National Fish Hatchery. These comments are intended as technical assistance to aid the planning process for the Restoration Project.

Based on review of the expected benefits of present action alternatives and potential incidental impacts, the Service believes that the Proposed Action (Five Dam Removal Alternative) would best achieve Restoration Project objectives. The Proposed Action also would be most consistent with objectives of several fishery restoration plans developed by State and Federal resource agencies (CRA 1989, CDFG 1990, CDFG 1993, CDFG 1996a, CDFG 1996b, CALFED 2000, USFWS 2001), including the CALFED Bay-Delta Program's Ecosystem Restoration Program (CALFED 2000). The Proposed Action should provide more overall benefits to the anadromous fish ecosystem than the other alternatives, and should most substantially improve the reliability of fish passage. The Proposed Action also should provide the most certainty of achieving desired results due to its plan for monitoring and adaptive management.

In addition to the following comments and recommendations, the Service previously provided Reclamation with a Draft Fish and Wildlife Coordination Act (FWCA) Report in July, 2003 (USFWS 2003), which was included in the Draft EIS/EIR as appendix Q. The Draft FWCA Report evaluated and summarized relative environmental benefits and impacts of Restoration Project

alternatives, and provided recommendations for project implementation. A Final FWCA Report will be forthcoming from the Service for inclusion in the Restoration Project's Final EIS/EIR.

Background

Declining Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) populations in the Sacramento River system (the mainstem river and its tributaries) have been attributed to several factors, including, water supply development, inadequate stream flow, rapid flow fluctuations, high summer and fall water temperatures in streams below diversions, dams that block access to upstream habitat, entrainment of juvenile fish into unscreened or poorly screened diversions, sedimentation, and over-harvest (USFWS 1995). These population declines have resulted in the need to implement habitat restoration actions throughout the Sacramento River system, as one way to preserve and enhance populations.

Battle Creek is recognized as the most important Sacramento River tributary for restoration of Chinook salmon and steelhead (Kier Associates 1999). Before hydroelectric and other land development in the watershed, Battle Creek provided a contiguous stretch of prime habitat for anadromous Chinook salmon and steelhead trout from its confluence with the Sacramento River upstream to naturally impassable waterfalls. Hydroelectric power development and hatchery operations on Battle Creek have affected annual runs of naturally produced Chinook salmon and steelhead. Impaired fish passage and instream flows have been the primary factors. Restoration of anadromous fisheries in Battle Creek has been identified as a priority in the aforementioned fishery restoration plans developed by State and Federal resource agencies.

Restoration Project

The Proposed Action and alternatives, as described in the Draft EIS/EIR, were designed to restore the ecological processes that would allow recovery of Chinook salmon and steelhead populations in Battle Creek and minimize the loss of electrical power produced by the Hydroelectric Project. Restoration components focus on providing 1) increased amounts and quality of spawning and rearing habitat (which limit salmon and steelhead production in Battle Creek), 2) unimpeded passage past natural and Hydroelectric Project barriers to preferred habitats, 3) appropriate water temperature and temperature continuity, and 4) unambiguous environmental cues for salmon and steelhead navigation (USBR and SWRCB 2003).

General Comments

1. In the Service's Draft FWCA Report (USFWS 2003), mitigation ratios are recommended for compensating temporary and permanent adverse effects on wetland, riparian, and terrestrial habitats. The Service continues to recommend these mitigation ratios and recommends that the ratios be incorporated into the Final EIS/EIR as environmental commitments.

2. The fish screens and fish ladders included in Restoration Project alternatives were carefully designed with "failsafe" features to help ensure maximum effectiveness under unfavorable operating conditions. Because these design features are now generally considered to be standard for modern-day screens and ladders, the Service suggests that "state-of-the-art" be used in place of "failsafe" in the EIS/EIR.

3. The "state-of-the-art" design features of fish screens and ladders that are intended to help ensure maximum effectiveness under unfavorable operating conditions should be more prominently described (e.g., their function and biological benefit) in general terms in the EIS/EIR. Logical prominent locations to describe these features would be under the *Project Description* or *Ecological Considerations* sections of chapter 2.

4. A series of colored bar graphs are presented in chapter 4.1 to indicate expected relative differences among alternatives for certain fisheries parameters (Figures 4.1-2 to 4.1-9). Although interpretation of the graphs is qualified in the text of the fish *Methods* section, many readers might read only the graphs and draw conclusions from literal interpretations, not finding the qualifying statements in the text. Therefore, it should also be stated in the captions of the graphs that the estimates are derived from broad generalizations, have varying degrees of accuracy, and should not be considered predictive of fish populations. In addition, the figures should be self explanatory, including what the different indices represent. A statement indicating that small differences among the results are probably not meaningful also would be useful in the captions. The Service believes that Figures 4.1-2 to 4.1-9 are generally most useful for indicating that any of the action alternatives would be a substantial improvement over the No Action Alternative.

5. If new information is available for estimating impacts on wetland, riparian, and upland habitats, such as areas of temporary and permanent impacts, then the updated impact estimates should be included in the Final EIS/EIR.

6. Text descriptions of benefits for passage of salmon and steelhead over natural barriers contain contradictions and are not consistent with information in Table 4.1-7. The text states that the benefits from the No Dam Removal and Three Dam Removal alternatives (lower minimum flow regime) are similar to the benefits from the Five Dam Removal and Six Dam Removal alternatives (higher minimum flow regime), yet also states that the lower minimum flow requirements of the No Dam Removal and Three Dam Removal alternatives may not provide the same level of adult passage that would be realized under the Five Dam Removal and Six Dam Removal alternatives. Table 4.1-7 indicates important differences between the two minimum flow regimes for passage over natural barriers on the North Fork Battle Creek, suggesting that the benefits are not similar.

7. In the present format of the Draft EIS/EIR, it is difficult to directly and easily compare effects of the alternatives. A summary list or table containing brief descriptions of effects and indications of relative magnitude of effects should be developed for the Final EIS/EIR.

8. Because the Restoration Project is preparing an Action Specific Implementation Plan (ASIP) for purposes of compliance with the Federal and State Endangered Species Acts and the Natural Communities Conservation Planning Act, any monitoring and mitigation plans that are identified or developed in the ASIP should be coordinated with information in the Final EIS/EIR. Environmental commitments made in the ASIP also should be summarized in the Final EIS/EIR if not already included.

Specific Comments

1. Page 4.1-20; Second paragraph: It is indicated that fish modeling output, as presented in Figures 4.1-2 to 4.1-9, is usable for "discerning" differences among alternatives. As mentioned above, modeling results may lack accuracy. Because "discern" can imply the recognition of factual differences, the term "estimate" would be a more appropriate term for interpreting the modeling output.

2. Page 4.2-24: Riparian habitat impacts: Riparian habitat impacts at the North Battle Creek Feeder site are identified as 7.2 acres. In actuality, the 7.2 acres represents the total loss of riparian habitat for all construction sites, as listed in Table 4.2-2. Also, riparian vegetation on and near the peninsula at the South Powerhouse site would be impacted, but this is not mentioned in Table 4.2-2.

3. Page 4.2-25; Migratory bird mitigation: The Service recommended mitigation measures for migratory birds in its Draft FWCA Report (USFWS 2003) that could supplement those included in the Draft EIS/EIR. The Service recommends that its additional measures be included in the Final EIS/EIR as environmental commitments.

4. Page 4.2-30; Woodland impacts: The Inskip Diversion Dam site contains live oak and blue oak woodlands with several exceptionally large oak trees that are likely hundreds of years old and possess exceptional ecological values. Agency discussions during previous site visits addressed preserving some of the largest oaks (mainly in the future parking area) that could be avoided and protected during construction, and preserved by using gravel for the parking surface instead of pavement. The Service continues to recommend these conservation measures to avoid impacts of large oak trees and reduce mitigation needs, and will work with Reclamation to develop site designs.

5. Page 4.2-40; Benefits to bats: It should be mentioned in the Final EIS/EIR that entrances to decommissioned tunnels would be fitted with bat gates that allow bat passage and preclude human entry, as means to maximize this benefit for bats.

6. Page 4.16-26; Effects of the No Action Alternative on Mount Lassen Trout Farms: It is stated that the No Action Alternative would substantially increase abundance of Chinook salmon and steelhead in Battle Creek, which could potentially increase occurrence of pathogens and adversely affect regional and local employment and income. However, as stated on page 4.1-25, the No Action Alternative would continue to support relatively low numbers of these fish, comparable to numbers observed in the past. Thus, there should be no impact indicated under the No Action Alternative.

7. Page 4.16-27; Effects of the Five Dam Removal Alternative on Mount Lassen Trout Farms: The Service has previously commented that the Upper Sacramento River variety of IHNV posses a low disease threat to rainbow trout. However, the Service recognizes that sub-clinically infected Mount Lassen Trout Farms fish could unknowingly be distributed to numerous watersheds in the state and pose a threat to the resource. If detected, this situation would likely adversely affect Mount Lassen Trout Farms.

If you have any questions regarding the information in this memorandum, please contact Bart Prose, Watershed Planning Branch, at (916) 414-6600.

cc:
AES, Portland, Oregon
FWS, Red Bluff, California (Attn: Jim Smith)
USBR, Sacramento, California (Attn: Mary Marshall)
SWRCB, Sacramento, California (Attn: Jim Canaday)

REFERENCES

CALFED (CALFED Bay-Delta Program). 2000a. Ecosystem Restoration Program: Strategic plan for ecosystem restoration. Sacramento, CA.

CDFG (California Department of Fish and Game). 1990. Central Valley salmon and steelhead restoration and enhancement plan. Inland Fisheries Div., Sacramento. 115 pp.

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CRA (California Resources Agency). 1989. Upper Sacramento River fisheries and riparian habitat management plan. Sacramento. 158 pp.

Kier Associates. 1999. Battle Creek Salmon and Steelhead Restoration Plan. Prepared for the Battle Creek Working Group. January. 142 pp.

USBR and SWRCB (U.S. Bureau of Reclamation and California State Water Resources Control Board). 2003. Battle Creek Salmon and Steelhead Restoration Project. Administrative draft environmental impact statement/environmental impact report, Vol. 1. July. Sacramento, CA.

USFWS (U.S. Fish and Wildlife Service). 1995. Working paper on restoration needs. Habitat restoration actions to double natural production of anadromous fish in the Central Valley of California. Vol. 2. Prepared for the U.S. Fish and Wildlife Service under direction of the Anadromous Fish Restoration Program Core Group. Stockton, CA.

USFWS (U.S. Fish and Wildlife Service). 2001b. Restoration plan for the anadromous fish restoration program. Prepared for the Secretary of the Interior by the U.S. Fish and Wildlife Service with assistance from the Anadromous Fish Restoration Program Core Group. Stockton, CA.

USFWS (U.S. Fish and Wildlife Service). 2003. Draft Fish and Wildlife Coordination Act Report for the Battle Creek Salmon and Steelhead Restoration Project. Sacramento Fish and Wildlife Office. Sacramento, CA.

Comment Letter F3—United States Department of the Interior, Fish and Wildlife Service, (October 16, 2003)

Response to Comment F3-1

This comment has been noted. Reclamation and the State Water Board thank the reviewer for recognizing that comments and recommendations made during the Battle Creek Project planning process have been acknowledged by Reclamation and incorporated into the document.

Response to Comment F3-2

This comment has been noted. Reclamation and the State Water Board thank the reviewer for support of the Five Dam Removal Alternative.

Response to Comment F3-3

The Final Fish and Wildlife Coordination Act (FWCA) Report, when received from U.S. Fish and Wildlife Service, will replace Appendix Q in the Draft FWCA Report as Appendix Q in Volume II of this Final EIS/EIR.

Response to Comment F3-4

Mitigation ratios for the compensation for temporary and permanent impacts on wetland, riparian, and terrestrial habitats in this Final EIS/EIR have been revised to reflect those presented in the Battle Creek Salmon and Steelhead Restoration Project Draft ASIP (Jones & Stokes 2004). The ASIP was prepared in consultation with the USFWS. The Draft FWCA Report, provided in Appendix Q of the Draft EIS/EIR, was used as a guide to determine adequate mitigation ratios for these habitat types. The final version of the FWCA Report is presented in Appendix Q in Volume II of this Final EIS/EIR.

Response to Comment F3-5

Fish screens and fish ladders included in the Restoration Project alternatives will continue to be described as *failsafe* rather than *state-of-the-art* because this is how fish screens and ladders were described in the 1999 MOU (Appendix A in

Volume II of this Final EIS/EIR). To maintain consistency with the 1999 MOU, the language will not change.

Response to Comment F3-6

In order to maintain consistency with the 1999 MOU, the term *failsafe* will continue to be used in the EIS/EIR instead of *state-of-the-art*. A brief description of the purpose for installing and a definition of the failsafe features of the fish screens and ladders have been included in Chapter 2 in Volume I of this Final EIS/EIR under Passage. This description is based on the definition of *failsafe* used in the 1999 MOU (Appendix A in Volume II of this Final EIS/EIR).

Response to Comment F3-7

A note was added to Figures 4.1-2 through 4.1-9 in Section 4.1, Fish, in Volume I of this Final EIS/EIR to clarify how the graphs in the said figures should be interpreted. The added note states, "As explained in the text, the index number does not correspond to a predicted number of fish. The index provides a relative comparison of habitat value to the No Action Alternative."

Response to Comment F3-8

Impacts on habitat types and waters of the United States are presented in Appendices L and M, respectively. Although NEPA and CEQA require that impacts on habitat types and waters of the United States be quantified, they do not necessarily require that these impacts be divided into temporary and permanent impacts in the EIS/EIR. However, Section 404 of the Clean Water Act does require quantification of temporary and permanent effects on waters of the United States. Because this information has been calculated as part of the requirements for the Section 404 permit, this updated information is included in Appendix M in Volume II of this Final EIS/EIR for waters of the United States.

Response to Comment F3-9

The last paragraphs in Impact 4.1-31 and Impact 4.1-69 in Section 4.1, Fish, in Volume I of this Final EIS/EIR have been replaced with new text. The new text clarifies the similarities and differences between the potential benefits for passage of salmon and steelhead over natural barriers provided by each alternative.

Response to Comment F3-10

The discussion comparing the alternatives in Chapter 7 in Volume I of this Final EIS/EIR has been updated. In addition, a new table, Table 7-2, has been added that compares the differences between the benefits and adverse impacts that would occur under each action alternative.

Response to Comment F3-11

All mitigation measures, monitoring plans, and environmental commitments presented in the Draft ASIP (Jones & Stokes 2004) have been incorporated into this Final EIS/EIR.

Response to Comment F3-12

The text under Methods in the Environmental Consequences discussion of Section 4.1, Fish, in Volume I of this Final EIS/EIR has been revised to state that the fish modeling output can be used to generally estimate, not discern, differences among the alternatives.

Response to Comment F3-13

Table 4.2-6, Biological Communities and Waters of the United States Potentially Affected by the Five-Dam Removal Alternative, and the text of all habitat impacts, including Impact 4.2-1, have been revised and corrected according to new acreage estimates provided in the wetland delineation update in March 2005 (Jones & Stokes 2005b).

Riparian forest and scrub communities that occur within the ordinary high water mark of Battle Creek, including the riparian vegetation on and near the peninsula at the South Powerhouse site, are considered other waters of the United States and are quantified and analyzed in this Final EIS/EIR as such. Language has been added to Table 4.2-6 and Section 4.2 in Volume I of this Final EIS/EIR under Sensitive Plant Communities and Associated Wildlife Habitats as well as under the Mitigation Measures for Impact 4.2-1 to clarify this.

Response to Comment F3-14

Text from the USFWS Memorandum of August 30, 2001, titled “Draft Impact Mitigation Measures for Birds Potentially Affected by the Battle Creek Salmon and Steelhead Restoration Project” has been added to the Environmental Commitments section under the heading Migratory Bird Treaty Act Compliance

Program in Chapter 3 in Volume I of this Final EIS/EIR. Some of the mitigation listed in that memorandum was not included because of issues of redundancy. Also, see Mitigation Measures for Impact 4.2-1, under the Five Dam Removal Alternative discussion in Section 4.2, Botanical, Wetland, and Wildlife Resources, in Volume I of this Final EIS/EIR for language supporting migratory bird mitigation.

Response to Comment F3-15

Reclamation is coordinating with the USFWS and PG&E to develop the best design for the proposed parking area near the Inskip Diversion Dam site. This coordination includes an ongoing investigation to determine the feasibility of protecting some of the largest oak trees at this site.

Response to Comment F3-16

Bats will receive more benefits if entrances to decommissioned tunnels are fitted with bat gates that allow bat passage and prevent human entry. In response to the comment, the text in this Final EIS/EIR was revised to indicate that bat gates would be implemented. The revised text can be found under Impact 4.2-18 in the Environmental Consequences discussion of Section 4.2, Botanical, Wetland, and Wildlife Resources, in Volume I of this Final EIS/EIR.

Response to Comment F3-17

The text under Socioeconomics for the No Action Alternative discussion in Section 4.16, Volume I of this Final EIS/EIR, has been revised to indicate that the abundance of Chinook salmon and steelhead in Battle Creek and the consequent level of risk for transmission of fish pathogens would be the same as under existing conditions.

Response to Comment F3-18

Reclamation and the State Water Board are aware of the concern that trout produced by MLTF's Jeffcoat and Willow Springs aquaculture facilities could become infected with serious or catastrophic fish diseases, such as the IHN virus, once the Restoration Project is implemented and anadromous fish populations are restored in Battle Creek. Infected MLTF trout could then be distributed to other water bodies in California and spread these diseases to fish populations that currently are not infected.

This EIS/EIR has been revised to address the increased risk of a serious or catastrophic fish disease spreading from Battle Creek to fish communities throughout the state through stocking with MLTF fish as a significant impact. Impact 4.1-8 in Section 4.1, Fish, in Volume I of this Final EIS/EIR presents an analysis and appropriate mitigation measures to address this significant impact. Water quality impacts and socioeconomic effects related to Impact 4.1-8 are also addressed in Sections 4.4, Water Quality, and 4.16, Other NEPA Analyses, in Volume I of this Final EIS/EIR, respectively. Master Response E provides additional information relating to how this impact has been analyzed and addressed.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

April 19, 2005

Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Subject: Supplemental Draft Environmental Impact Statement (SDEIS) for the Battle Creek Salmon and Steelhead Restoration Project, Tehama and Shasta Counties, California (CEQ #050090)

Dear Ms. Marshall:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act.

EPA reviewed the Draft EIS (DEIS) for the proposed Battle Creek Salmon and Steelhead Restoration Project, and provided comments to the Bureau of Reclamation on September 19, 2003. We rated the Preferred Alternative as Lack of Objections (LO), and offered several suggestions to strengthen and clarify proposed mitigation commitments.

Based on comments received during the public review period, Reclamation made changes to the DEIS, several of which were deemed to constitute significant new information that warranted the release of the SDEIS. EPA has reviewed this additional information and has no objections to the information provided. As such, EPA has also rated this document as LO. Please see the enclosed Rating Factors for a description of EPA's rating system.

We appreciate the opportunity to review this SDEIS. When the Final EIS is released for public review, please send one copy to the address above (mail code: CED-2). If you have any questions, please contact me or David P. Schmidt, the lead reviewer for this project. David can be reached at 415-972-3792 or schmidt.davidp@epa.gov.

Sincerely,

Lisa B. Hanf

Lisa B. Hanf, Manager
Environmental Review Office
Communities and Ecosystems Division

Enclosure:
Summary of EPA Rating Definitions

cc: Jim Canaday, California State Water Resources Control Board

SUMMARY OF EPA RATING DEFINITIONS [1]

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACTS OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impact that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

[1] From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

Comment Letter F4—U.S. Environmental Protection Agency, Region IX, Lisa B. Hanf, Manager, Environmental Review Office (April 19, 2005)

Response to Comment F4-1

Comment noted. Reclamation and the State Water Board thank the EPA for their input and review of the Draft Supplemental EIS/Revised EIR.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

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APR 29 2005

In reply refer to:
Battle Creek Salmon and Steelhead Restoration Project

Kirk Rodgers
Regional Director, Mid-Pacific Region
U.S. Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Celeste Cantú
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, California 95814

Dear Mr. Rodgers and Ms. Cantú:

This letter transmits the Fish and Wildlife Service's (Service) comments and recommendations on the Draft Supplemental Environmental Impact Statement/Revised Environmental Impact Report (Draft SEIS/REIR) for the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project) (USBR and SWRCB 2005). The Draft SEIS/REIR was developed by the Bureau of Reclamation (USBR) and State Water Resources Control Board (SWRCB) to disclose new significant information and supplement the Restoration Project's Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) (USBR and SWRCB 2003). These comments and recommendations have been coordinated with the Service's Red Bluff Fish and Wildlife Office and Coleman National Fish Hatchery, and are provided as technical assistance to the planning process of the Restoration Project.

In addition to the comments and recommendations herein, the Service previously provided USBR with a Draft Fish and Wildlife Coordination Act (FWCA) Report in July, 2003 (USFWS 2003), which was included in the Draft EIS/EIR, as appendix Q. The Draft FWCA Report evaluated and summarized relative environmental benefits and impacts of Restoration Project alternatives, and provided recommendations for project implementation. A Final FWCA Report will be provided by the Service during June, 2005.

Background

Declining Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*) populations in the Sacramento River system (the mainstem river and its tributaries) have been attributed to several factors, including, water supply development, inadequate stream flow, rapid flow fluctuations, high summer and fall water temperatures in streams below diversions, dams that block access to upstream habitat, entrainment of juvenile fish into unscreened or poorly screened diversions, sedimentation, and over-harvest (USFWS 1995). These population declines have resulted in the need to implement habitat restoration actions throughout the Sacramento River system to help preserve and enhance populations.

Battle Creek is recognized as the most important Sacramento River tributary for restoration of Chinook salmon and steelhead (Kier Associates 1999). Before hydroelectric and other land development in the watershed, Battle Creek provided a contiguous stretch of prime habitat for Chinook salmon and steelhead from its confluence with the Sacramento River upstream to naturally impassable waterfalls. Impaired fish passage and instream flows have been the primary factors affecting annual runs of naturally produced Chinook salmon and steelhead. Restoration of anadromous fisheries in Battle Creek has been identified as a priority in several fishery restoration plans developed by State and Federal resource agencies.

Restoration Project

The Proposed Action and alternatives, as described in the Draft EIS/EIR, were designed to restore the ecological processes that would allow recovery of Chinook salmon and steelhead populations in Battle Creek while minimizing the loss of electrical power produced by the Hydroelectric Project. Restoration components focus on providing 1) increased quantities and quality of spawning and rearing habitat (which limit salmon and steelhead production in Battle Creek), 2) unimpeded passage past natural and Hydroelectric Project barriers to preferred habitats, 3) appropriate water temperature and temperature continuity, and 4) unambiguous environmental cues for salmon and steelhead navigation (USBR and SWRCB 2003).

Comments

The Service offers the following comments to assist USBR and SWRCB with completing environmental review for the Restoration Project:

1. Information in the Draft SEIS/REIR regarding the Service's Coleman National Fish Hatchery (CNFH) should to be updated for the Final EIS/EIR. The Service recently provided new information to USBR and the SWRCB on certain CNFH activities during our review of draft master responses to public comments on the Restoration Project's Draft EIS/EIR. In particular, the new information addressed the role of an adaptive management plan for CNFH and its relationship to the Restoration Project adaptive management plan, status of the CNFH reevaluation process, and status of the planning for the CNFH barrier weir project. These updates and clarifications should appear in the Final EIS/EIR.

2. The Draft SEIS/REIR correctly states that the Service has committed to ensuring that Coleman National Fish Hatchery operations will be consistent with conservation of listed species. Furthermore, the Service committed to increased public involvement in hatchery operations that could affect the restoration of salmon and steelhead populations in Battle Creek. The Service demonstrated these commitments in 2004-2005 by suspending supplementation of steelhead above the Coleman National Fish Hatchery barrier weir following the recommendation of an independent science panel. It should be noted that the Draft SEIS/REIR's reference to the decision making process for future disposition of adult steelhead would be focused on questions about steelhead supplementation in portions of Battle Creek above the CNFH barrier weir.

3. The Draft SEIS/REIR states that the Restoration Project is preparing an addendum to the Action Specific Implementation Plan (ASIP), which will address newly identified impacts for purposes of compliance with the Federal and State Endangered Species Acts and State Natural Communities Conservation Planning Act. The Draft SEIS/REIR refers to information in chapter 4-2 that will be incorporated into the ASIP addendum. It should be noted that additional new information on potential impacts to the valley elderberry longhorn beetle has been developed since the Draft SEIS/REIR was issued. This new information should be incorporated into the ASIP addendum and Final EIS/EIR.

4. Conservation measures for the California red-legged frog, such as those identified in the Draft SEIS/REIR, would be necessary only if California red-legged frogs were found on or near project sites. If California red-legged frogs prove to be present, the Service would review the conservation measures in the Draft SEIS/REIR and provide final conservation measures in its biological opinion for the Restoration Project.

The Service appreciates the opportunity to comment on the Restoration Project's Draft SEIS/REIR. If you have any questions regarding the information in this letter, please contact Bart Prose of my staff at (916) 414-6600.

Sincerely,

David L. Harlow
Acting Field Supervisor

cc:
AES, Portland, Oregon
USFWS, Red Bluff, California (Attn: Jim Smith)
USBR, Sacramento, California (Attn: Mary Marshall)
SWRCB, Sacramento, California (Attn: Jim Canaday)

References

USBR and SWRCB. 2003. Battle Creek Salmon and Steelhead Restoration Project. Draft environmental impact statement/environmental impact report. July. U.S. Bureau of Reclamation and California State Water Resources Control Board, Sacramento, CA.

USBR and SWRCB. 2005. Battle Creek Salmon and Steelhead Restoration Project. Draft supplemental environmental impact statement/revised environmental impact report. February. U.S. Bureau of Reclamation and California State Water Resources Control Board Sacramento, CA.

USFWS. 2003. Draft Fish and Wildlife Coordination Act report for the Battle Creek Salmon and Steelhead Restoration Project. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, CA.

Comment Letter F5—U.S. Fish and Wildlife Service, David L. Harlow, Acting Field Supervisor, Sacramento Fish and Wildlife Office (April 29, 2005)

Response to Comment F5-1

Reclamation and the State Water Board thank the USFWS for providing updates regarding the Coleman National Fish Hatchery. Information about the role of an adaptive management plan for the hatchery and its relationship to the Restoration Project's AMP, the status of the Coleman National Fish Hatchery reevaluation process, and the status of planning for the hatchery barrier weir project has been used to update this Final EIS/EIR. See also Master Response D in Chapter 2 in Volume III of this Final EIS/EIR.

Response to Comment F5-2

Reclamation and the State Water Board thank the USFWS for providing updates regarding USFWS commitments to ensure that operations of the Coleman National Fish Hatchery are consistent with conservation of listed species. This information has been used to update this Final EIS/EIR in Master Response D, Chapter 2 in Volume III, and in Chapter 6 in Volume I in this report.

Response to Comment F5-3

In April 2005, biologists conducted USFWS protocol-level surveys for the valley elderberry longhorn beetle and identified several more elderberry shrubs (potential habitat for the beetle) that would be affected by project construction at the Jeffcoat mitigation site. One shrub also was found at the Willow Springs site, but is outside the construction boundary and therefore would not be affected by the project. These new shrubs are included in Section 4.2, Botanical, Wetland, and Wildlife Resources, in Volume I of this Final EIS/EIR.

Response to Comment F5-4

Site assessments for potential California red-legged frog habitat were conducted at all Restoration Project sites in 2000 and 2005. Potential suitable breeding habitat for California red-legged frogs was identified at Lower Ripley Creek Feeder, Asbury Diversion Dam, Jeffcoat mitigation site, and Willow Springs mitigation site, as well as other sites within one mile of the Restoration Project sites (Jones & Stokes 2001, Jones & Stokes 2005a). USFWS protocol-level surveys were conducted at these sites in April and June 2005. No species were

observed during these surveys. Section 4.2, Botanical, Wetland, and Wildlife Resources in Volume I of this Final EIS/EIR has been modified to reflect these survey results.

Chapter 5
State Agency Comments

This section contains copies of the comment letters received from state agencies. Each letter is followed by responses to the comments presented in each letter. Responses to comments are numbered individually in sequence, corresponding to the numbering assigned to comments in each comment letter. The responses are prepared in answer to the full text of the original comment.

Table 5-1. State Comment Letters Received on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR

Comment Letter No.	Date	Agency/Organization	Name
Draft EIS/EIR (July 2003)			
S1	08/21/03	California Department of Forestry and Fire Protection	Bill Hoehman, Unit Chief, Tehama-Glenn Unit
S2	09/16/03	California Department of Conservation	Erik Vink, Assistant Director
S3	09/16/03	California Department of Transportation	Marcelino Gonzalez, Local Development Review, District 2
S4	10/15/03	California Department of Water Resources	Dwight P. Russell, Chief, Northern District
S5	10/16/03	California Department of Fish and Game	Donald B. Koch, Regional Manager
Draft Supplemental EIS/Revised EIR (February 2005)			
S6	03/21/05	California Department of Transportation	Marcelino Gonzalez, Local Development Review
S7	04/18/05	State Clearing House and Planning Unit	Terry Roberts, Director
S8	04/28/05	California Department of Fish and Game	Harry Rectenwald, Environmental Scientist

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
604 Antelope Blvd.
Red Bluff, CA 96080
(530) 529-8548

August 21, 2003

To: Ms. Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

From: Bill Hoehman, Unit Chief, Tehama-Glenn Unit
California Department of Forestry and Fire Protection (CDF)
604 Antelope Boulevard, Red Bluff, CA 96080

Re: Comments on the Battle Creek Salmon and Steelhead Restoration Project

A member of my staff (Adam Wyman) attended the public workshop at Manton Joint Elementary School held August 12, 2003. While at the workshop, Adam spoke personally with Mr. Jim Canaday of the State Water Resources Control Board about the issues and comments raised below. Based on the material presented at the public workshop, discussions with Mr. Canaday, and following review of the project literature, we have the following comments.

1. Fire Hazard - It appears that the project involves the use of explosives during blasting operations, tunneling, trenching, road building and pipeline installation, etc. These activities would occur during the summer months when the fire hazard conditions will be at the highest levels. The project area contains steep rocky terrain with forest and brush fuels, and poor access making it increasingly difficult to combat a wildfire. Transmission lines, conduits, and penstocks may increase fire control problems during a fire. The use of welders, electrical and mechanical equipment in this area increases fire risk.

2. Emergencies - It does not appear the project contains a fire prevention and emergency response plan. There will likely be dozens of workers (project supervisors, private contractors, laborers, etc) working in rugged areas with poor access, which would increase the risk of a medical emergency.

3. Communication - Will workers assigned to the project have the ability to report fires and emergencies via two-way radios, cell phones, etc. to appropriate officials? Communication systems would also allow CDF to notify project workers of nearby emergencies, fires, etc. Communication systems would allow responding emergency personnel to quickly locate and access the scene of an emergency.

Following State, federal and local regulations and proper planning by project supervisors, may mitigate some of these concerns. However, CDF recommends additional measures be taken to further reduce the risks of wildfire and to assist CDF emergency response personnel during an emergency as follows:

Develop a "Fire Prevention and Emergency Response Plan" and make the plan available to CDF, Project Supervisors, Contractors and other agencies as necessary prior to operations.
At the minimum, the plan could include the following example language:

a) The policies concerning fires and emergencies:
Example language; *All contractors and employees working on the project shall make every effort and take all reasonable precautions to prevent fires and shall take immediate action to suppress and report any fire or emergency. All such personnel will review and operate in compliance with this fire policy.*

b) List actions to be taken during fires and emergencies:
Example language;
During Working Hours Monday-Friday
- *Notify closest public fire fighting agency or 911.*
- *Maintain first aid kits or stations and make all workers aware of their locations.*
- *Report fire (type of fire, location, size, and rate of spread) by best method of communication available.*

After Working Hours and Holidays
- *Notify closest public fire fighting agency or 911.*
- *Notify those listed in the plan in order of listing.*

c) List responsibilities of project supervisors, private contractors, or workers:
Example language; *During Fire Season, the Project Supervisor or Contractor shall determine, through direct contact with the CDF or USFS, public service radio announcements, or fire weather web sites, whether RED FLAG conditions exist in the project area. If so, all use of chainsaws, tracked equipment, clearing, welding and use of cutting torches will be suspended at 1:00 P.M. Smoking shall be restricted to a car, truck or crew vehicle. Every effort shall be made to determine RED FLAG conditions during the prior afternoon and all reasonable effort (phone, radio, direct contact) shall be made to share such information.*

The Contractor or Project Supervisor shall be responsible for enforcing fire prevention rules, monitoring fire weather conditions, keeping all roads in a passable condition and direct fire suppression or emergency response efforts within the project area.

Note: The local CDF Battalion Chief (Gary Lyon, 528-5111 or 200-2511 for eastern Tehama County) would be available to make periodic site visits to become familiar with project locations and access routes prior to emergency.

Notification to CDF, public and neighbors on days when blasting operations will occur. Notify the CDF Emergency Command Center (ECC) by calling (530) 529-8541. Post a written notification at Manton corners in a public place is recommended for public notification.

d) List the required fire-fighting equipment at project location (during fire season only):
***Example language**; There shall be provided and maintained at all times, in a specific location, for fire fighting purposes only, a sufficient supply of serviceable tools to equip 50 percent of the able-bodied personnel working on the job. Among these tools shall be included shovels, axes, saws, backpack pumps, and scraping tools. At least ½ of all tractors/bulldozers shall be equipped with lights. Canteens and flashlights shall be available to at least 1/3 of the able-bodied crew. All mobile equipment shall be equipped with a serviceable axe and shovel.*

e) Communications plan:
List telephone numbers, radio frequencies, channels and other forms of communication. List locations or map locations of cellular phone service in or near the project area. Update the contacts and phone numbers as necessary with plan amendments.

f) Travel maps showing project location:
Include maps as necessary that would aid emergency responders to the project, i.e. from a major highway, town or other landmark to the project area. Use 7.5 Min. USGS or equivalent maps highlight the route. Are there any helicopter landing areas, if so map them and give the location coordinates (use a GPS receiver, CDF may provide assistance upon request).

g) Contact information for project personnel, emergency agencies, and local hospitals :
(Names and phone numbers)

Please consider implementing a plan such as the example provided above. For your convenience, another great example of a plan is attached, which was used on an AT&T coaxial cable removal project near Red Bluff, CA.

The implementation of a Fire Prevention and Response Plan will ensure increased public safety and more efficient responses by CDF and other personnel to the project area during an emergency.

If you have any questions, or would like additional help or information regarding the preparation of your plan, do not hesitate to call, as we would be pleased to assist you in any way possible.

Thank you for your consideration and an opportunity to comment on the project.

FORKERT
ENGINEERING &
SURVEYING, INC.

1431 N. Market Blvd. Ste. 5
Sacramento, CA 95834-1942
Phone: (916)928-8400
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halecarnes@aol.com

Hal Carnes
Project Engineer

AT&T

Fire Prevention and Response Plan

for the AT&T
Smoke Creek Road, Nevada to Red Bluff, California
Coaxial Cable Removal Project

March 1, 1999

FES INC.
FORKERT ENGINEERING & SURVEYING, INC.

BHC
BRUNGARDT HONOMICHL & COMPANY P.A.
CONSULTING ENGINEERS

FIRE PREVENTION AND RESPONSE PLAN

FOR THE AT&T

SMOKE CREEK ROAD, NEVADA to RED BLUFF, CALIFORNIA

COAXIAL CABLE REMOVAL PROJECT

Project Proponent:

Prepared by:

BRUNGARDT HONOMICHL & COMPANY, P.A.
CONSULTING ENGINEERS

for

FORKERT ENGINEERING & SURVEYING, INC.

March 1, 1999

TABLE OF CONTENTS

AT&T
Coaxial Cable Removal Project
CA/NV State Line to Red Bluff, CA

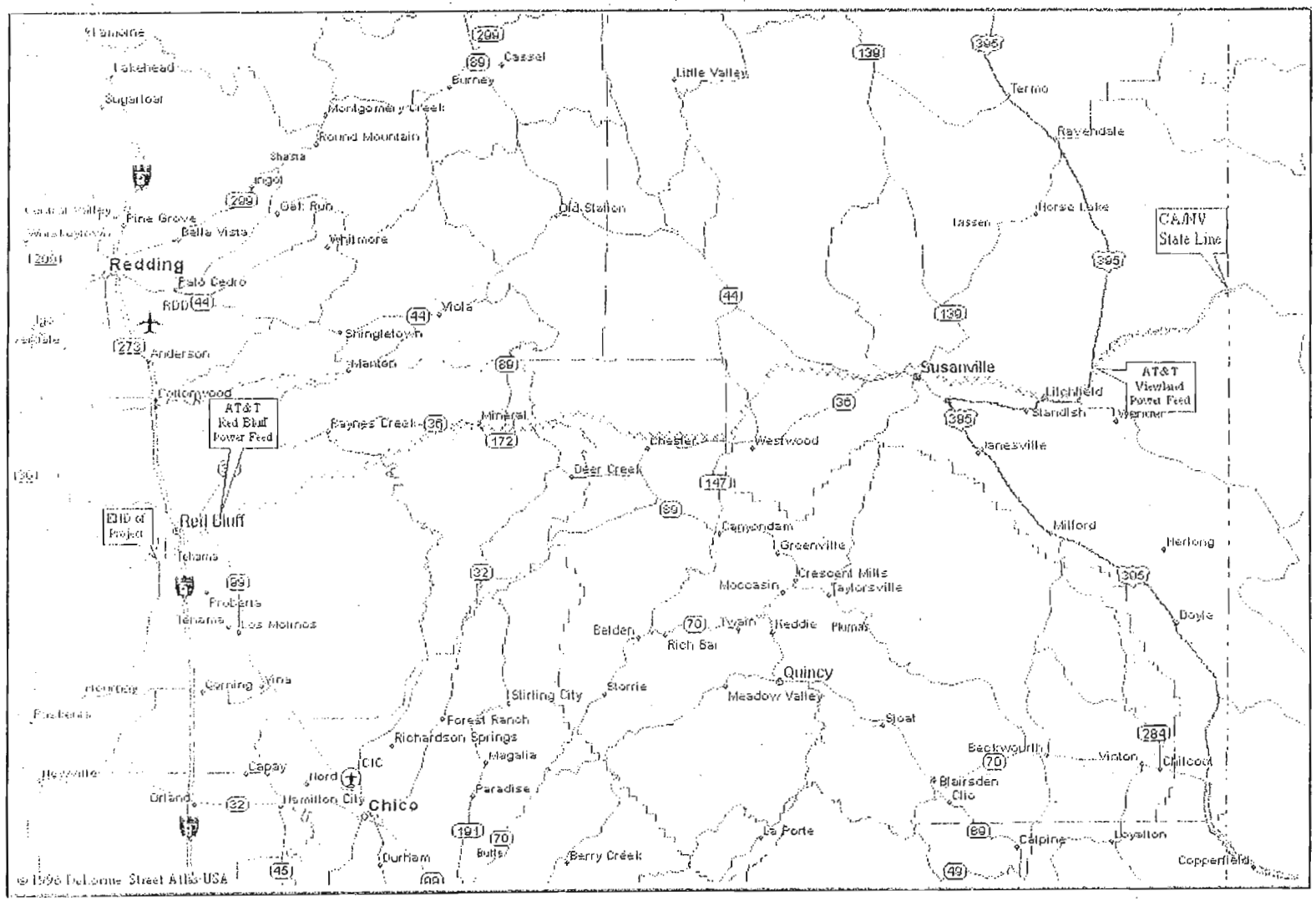

Figure 1: Location of the AT&T Coaxial Cable Right-of-Way
Source: Benchmark Engineering & Consulting, P.A.

1.0 PURPOSE OF THE PLAN

The primary purpose of this plan is to make the Contractor aware of fire prevention, response methods, and requirements. It sets forth responsibilities for the prevention, pre-suppression, and suppression activities associated with fire within or adjacent to the project area.

1.1 Project Definition

The AT&T cable removal project is defined as the area shown on the construction drawings covering the route from Smoke Creek Road, Nevada to Red Bluff, California, a distance of approximately 150 miles. The project area includes the land directly adjacent to the alignment, the Contractors yards and staging areas, access roads, camps and other areas used during construction.

1.2 Definition of Terms

BLM - Bureau of Land Management

USFS - United States Forest Service

CDF - California Department of Forestry and Fire Protection

Land Managers - Those agencies, such as the BLM, USFS, CDF, and other agencies responsible for fire protection.

Field Representatives - The term Field Representative shall refer to those individuals representing the Land Managers.

AT&T - AT&T Corp. and its representatives

Contractor - The term contractor shall refer to the construction contractors hired by AT&T to carry out the cable removal.

Fireguard - The title Fireguard shall refer to the individual assigned by the Contractor to carry out the duties of the Fireguard as outlined in this plan.

Sale Activity Level - The Sale Activity Level is a level of fire danger calculated and posted by the USFS through the National Fire Danger Rating Process.

2.0 RESPONSIBILITY

This section outlines those responsibilities assigned to the Contractors.

2.1 The Contractor(s):

Will initiate action to suppress all project caused fires unless relieved by the Land Mangers. The Contractor shall determine the level of fire fighting activity his personnel can safely engage in.

Will ensure that prevention, detection, presuppression, and suppression activities are in accordance with this Fire Plan and state, county, and federal laws, ordinances, rules and regulations pertaining to fire.

Will accompany the Field Representatives on fire tool and equipment inspections and will take corrective action upon notification of any fire protection requirements not in compliance.

Will curtail or shut down any operation or construction activity which poses an unacceptable fire hazard and risk until appropriate safeguards are taken.

Will notify the local CDF field representative when the project enters a new county.

Will take the following action should a fire occur within the project area:

Immediately alert the available project crews and send available manpower with tools and equipment to control the fire. The Contractor shall determine the level of fire fighting activity his personnel can safely engage in.

Designate a person to act as coordinator who will handle messages and initiate action upon request until relieved by the BLM, USFS, or CDF.

Immediately notify the nearest Field Representative and appropriate agencies of fire location, action taken, and status of fire (see Fire Call Directory).

In Nevada the contractor shall contact the appropriate BLM Interagency Dispatch Center and provide all pertinent information (see Fire Call Directory).

In California the contractor shall contact the appropriate BLM Interagency Dispatch Center and provide all pertinent information (see Fire Call Directory) and contact the USFS or CDF.

2.2 The BLM, USFS, and CDF:

The BLM is responsible for all fire prevention, pre-suppression , and suppression activities on BLM lands.

The USFS is responsible for all fire prevention, pre-suppression, and suppression activities on lands within the fire protection area.

The CDF is responsible for fire prevention/ suppression activities on all State Responsibility Areas (SRA) and/ or on federal lands where it has direct protection responsibilities.

Will discuss these fire protection measures with AT&T and their Contractor(s) in implementation of these fire protection measures.

Will inspect the project area for compliance with fire protection requirements and will notify AT&T in the event deficiencies occur.

May delegate the above responsibilities to the field representative.

3.0 ORGANIZATION

Each Contractor shall furnish AT&T a list of the manpower and equipment used on the project. AT&T shall forward this list to the BLM, USFS and CDF.

4.0 FIRE PRECAUTION

This section addresses the fire precaution measures to be implemented for the purposes of preventing fires.

4.1 Fire Precaution Levels

Though the majority of construction activities will not take place on National Forest property, the project does pass through the boundaries of Lassen National Forest. The following shall apply when working in or near the USFS boundary. In addition, the fire potential within the Forest Boundary can be a good indication of the fire potential in heavily vegetated corridors elsewhere on the project. For this reason, following these procedures outside the Forest Boundary is also recommended.

The USFS determines the fire danger level for each work day. These are known as "Fire Sale Levels" and range from 1 to 5. Each level has individual restrictions on what work can take place.

4.1.1 Sale Activity Level - Fire precaution measures will be implemented by AT&T and their Contractors based on Sale Activity Levels, as calculated by the Land Managers through the National Fire Danger Rating Process.

4.1.2 Red Flag Conditions - Predictions are made during the daily Fire Weather Forecast for extreme Fire Behavior Conditions, such as high winds, low humidity, high occurrences of lightning activity, or movement of a frontal system through the area. These conditions generally exist for short time periods (generally less than 24 hours), but may require special precautionary measures.

4.1.3 Hoot-Owl Restrictions - Will be in effect when Sale Activity Level 4 is reached. See descriptions of Precautions Required below.

4.1.4 Closures and Restrictions - Fire closures or restrictions will be invoked under 36 CFR 261.50 and will be applicable to National Forest System Lands only. State fire laws, regulations, and closure actions will be used for state and private lands. These closures and restrictions will be as proclaimed by the CDF.

4.1.5 Fire Precaution Schedule - The Contractor will conduct operations in accordance with the Fire Precaution Schedule. The Fireguard shall contact the National Forest Dispatch each

day between 4:00 and 6:00 p.m. Pacific Time Zone to obtain the Sale Activity Level to be followed the next day within the local operating area. The Fireguard shall, no later than 9:00 a.m. the following day, advise their Contractor(s) of any change in the Fire Precaution Schedule.

FIRE PRECAUTION SCHEDULE	
SALE ACTIVITY LEVEL	DESCRIPTION OF PRECAUTIONS REQUIRED
0, 1, 2	Normal Fire precautions as shown in Section 4.
3	Normal Fire Precautions as shown in Section 4, except designated areas for smoking; warming or cooking fires will require a written permit.
4	Hoot-Owl Restrictions
	Fireguard(s) required for a period of ½ hour after end of a regular construction shift
	Restrictions should be lifted as soon as there is a significant break in burning conditions due to precipitation, longer nights, lower temperatures, or higher humidities.
5	Shutdown all operations; except operations on mineral soil may continue with special Land manager's permit
	Restrictions on blasting and welding may be imposed.
Area Closure	Total shutdown of all operations and area closed to entry. Advance notice will be given as soon as area closure appears a reality, followed by a meeting convened to discuss the situation at that time.

In certain specific instances, the Land Manager may modify the above clauses to more closely reflect the true status of localized risks and hazards. Some of these instances are illustrated below:

Under unusually severe conditions or with operations that constitute an unusual risk, the Land Managers may institute any or all of the above stipulations, or may require additional action in certain specialized cases.

In specific instances where it can be adequately demonstrated that little or no risk is incurred, the Land Mangers may permit certain construction activities to take place under carefully controlled conditions.

4.2 Fire Precaution Measures

4.2.1 Fire Prevention - The Contractor shall implement the following precautionary measures when conducting the operations described.

Burning - BLM, USFS and/or CDF burning permits are required and shall contain special stipulations pertinent to the particular job. Burning will be allowed when conditions are within predetermined prescriptions. The Contractor will provide specific on-site fuels and weather data to the Land Manager to determine acceptable burning conditions are in keeping with the prescription. When special burning restrictions due to air quality are imposed, by either the CDF or the USFS, burning permits will be suspended or modified.

> NOTE: Open fires will not be permitted by the CDF whenever open burning has been suspended on State Responsibility Areas (SRA). It is the contractor's responsibility to determine if open burning has been suspended on SRA prior to commencing any open burning by calling the local CDF headquarters.

Blasting - Only blasting caps approved in the blasting permit will be allowed. During periods when Sale Activity Level 3 or 4 is in effect, a Fireguard shall be required where blasting is done. The Fireguard shall remain on duty for at least one hour after blasting is finished, and shall be equipped with at least a round-pointed, size "0" or larger shovel and a back-pack pump filled with water. Blasting hours are restricted under Sale Activity Level of 4. Blasting is prohibited under Sale Activity Level 5.

Welding - All welding and cutting shall be done in areas cleared to mineral soil a minimum of 10 feet around the welding area. Two back-pack pumps full of water, one five (5) pound dry powder or CO_2 fire extinguisher, and one size "0" round-pointed shovel with a minimum 46" long handle will be carried with the welder at all times. The Fireguard will be notified each day of all areas where welding and cutting was done. When the Sale Activity Level is 3 or 4, the Fireguard will inspect all areas after welding and cutting has stopped. No welding will be permitted at a Sale Activity Level of 5.

Spark Arrester - Each internal combustion engine shall be equipped with a spark arrester or spark arresting device meeting USFS Standard 5100-1a, or SAE recommended practice J335(b) and J350(a). Engines used to provide motive power for trucks, truck tractors, buses, and passenger vehicles, except motorcycles, do not need a spark arrester if the exhaust system is equipped with a muffler as defined in the California Vehicle Code. An exhaust driven turbocharger is considered to be a satisfactory spark arrester if all exhausted gases pass throughout the rotating turbine wheel, there is no exhaust gas bypass to the atmosphere, and the turbocharger is in effective mechanical condition. Internal combustion engine exhaust system, arresters and other devices shall be properly installed and maintained. All flues used in construction operations and in construction camps shall be equipped with spark arresters in good working order and meeting CDF standards.

Lunch and Warming Fires - All lunch and warming fires shall be completely extinguished at the end of each workday and at no time be left unattended. Lunch and warming fires will not be permitted during dry periods, as specified by the Land Manager's Field Representative.

Smoking - Smoking and fire rules shall be posted on the Contractor's field office project bulletin board during the fire season. Supervisory personnel shall oversee and require compliance with these rules. Smoking is prohibited during the fire season except in designated areas agreed upon by AT&T and the Land Manger. Under no circumstances will smoking be permitted while operating equipment or while walking or working in areas of vegetation.

Warning Devices - Tar pots, torches, highway flares or other devices with open flame will not be allowed. Only electric or battery operated warning devices will be used within the project area.

Small Engine Sites, Parking Areas, and Staging Areas - Equipment parking areas and small stationary engine sites, where permitted, shall be cleared of all flammable material and equipped as required by law. Glass jugs or bottles shall not be used as containers for gasoline or other flammable substances.

Refueling - Fuel trucks will have a large fire extinguisher charged with necessary chemical to control electrical and gas fires with a minimum of 40 B:C or higher rating.

4.2.2 Fire Presuppression

Continuous access to all roads for emergency vehicles during construction shall be maintained

AT&T and its Contractor(s) shall equip **each vehicle,** truck or tractor with a minimum of one five (5) pound dry chemical fire extinguisher with 5 B:C or higher rating, and a round-pointed size "0" shovel or equivalent.

Each Contractor shall provide **one fire tanker for his work zone.** The fire tanker will be centrally located on active areas of the project and available for use. The tanker shall contain a tank of no less than a 300 gallon capacity, upon which shall be mounted a live hose reel or live hose basket with 250 feet of at least 3/4 inch I.D. heavy-duty rubber hose; a portable or power takeoff pump with discharge capacity of at least 20 gallons per minute at 150 P.S.I. pressure. Gear type pumps shall be provided with a bypass or pressure relief valve so the hose nozzle may be shut while the pump is operating. The tanker unit shall have a hose nozzle of the shutoff type, adjustable for straight stream, spray or fog; at least 12 feet of one inch suction hose with an intake screen: and an additional 250 feet of 3/4 inch heavy-duty rubber hose or one inch cotton jacket rubber lined or linen hose to be carried on the unit for

use as needed. Tools, adapters, accessories and fuel necessary to operate the pump and truck shall be provided. Fuel sufficient to run the pumping unit for at least two hours shall be maintained with the unit at all times.

The Contractor shall provide one sealed tool cache with hasp for **each cable or manhole removal crew**. The cache will be provided and maintained by Contractor(s) for emergency fire fighting use at each operating location. In some cases the cache may be moved in conjunction with the Contractor's operation or as specified by the Field Representative, and number as designated by the Field Representative. The tool boxes shall be red in color, and labeled "For Fire Fighting Only" and be proportionate for the operation, as specified in California Public Resource Code (CPRC), Section 4428(a). The chain saw requirements of CPRC 4428(b) shall also be followed. As a guide, a fire tool box may contain an inventory similar to the following:

- Electric head lamps with batteries
- First aid kit
- Knapsacks
- Pulaskis with sheaths
- Round-pointed size "0" shovels
- Back-pack pump, filled with water

5.0 FIRE SUPPRESSION

AT&T and its Contractor(s) and subcontractors will take aggressive action to prevent and suppress fires on and adjacent to the permitted area.

AT&T and its Contractor(s) should notify the closest fire dispatcher using the numbers provided in the Fire Call Directory immediately upon discovery of a fire.

In the event that AT&T or its Contractor(s) are the first personnel to arrive at the scene of a fire, they should take aggressive suppression action as described above, until a USFS, CDF, County, or other fire suppression force arrives and assumes control of managing the incident. The Contractor shall determine the level of fire fighting activity his personnel can safely engage in.

Available personnel and equipment will be provided by AT&T and its Contractor to fight fires on the project area as needed to completely suppress project caused fires. Personnel and equipment will remain on AT&T or Contractor's payroll for all project-caused fires. The Contractor shall determine the level of fire fighting activity his personnel can safely engage in.

When fires are the responsibility of the Land Manager, the Land Manager shall reimburse the Contractor for all wages and equipment use costs, as appropriate, according to fire fighting rates common to the area. The Land Managers will make every effort to avoid calling on AT&T or project Contractor(s) for action on fires outside the permitted areas except in emergencies.

If the construction effort requires the use of a "rock saw" within State Responsibility Areas (SRA) during the declared fire season, a water tender filled with a minimum of 3,000 gallons will be on site in order to wet the vegetation in the proposed rock saw operational path. The rock saw operational path is deemed to be a minimum of 20 feet on each side of the rock saw for a total width of 40 feet.

6.0 DURATION OF THE PLAN

This plan will apply to any and all Contractor(s) and its employees on the project and will be in effect until the project is completed.

7.0 ADDITIONAL DUTIES

7.1 DUTIES OF THE FIREGUARD

The Contractor's Fireguard shall be responsible for the following duties.

1. Make regular inspections of all tools and equipment for compliance with the Land Manager's specifications. Inspect tool caches weekly.

2. Make regular inspections for compliance with all State, County, and Federal laws, ordinances, and regulations pertaining to fire, flammable fuels, and explosives used in conjunction with this project.

3. Inform AT&T of the Sale Activity Level daily when working within or near a USFS boundary.

4. Post smoking and fire rules in conspicuous places.

5. Make initial attack on fire within and adjacent to the permitted area.

6. Accompany the USFS or Field Representative on fire inspections of the project.

7. Keep the USFS and Field Representative informed of all burning and blasting operations.

8. Ensure that all contractor employees are made aware of the contents of the Fire Plan.

9. Remain on duty in the immediate area of construction whenever any construction activity is in progress and during additional periods as stated under Fire Precaution Schedule.

10. Report all fires to the appropriate Fire Protection office immediately.

11. Assume supervision of fire suppression activities until officially relieved by a USFS or other fire suppression officer.

12. Ensures that the 3,000 gallon water tender is on site and has watered the vegetation in the "rock saw operational path" for a minimum of 20 feet on each side of the projected path of the rock saw prior to rock saw operations.

FIRE CALL DIRECTORY

COAXIAL CABLE REMOVAL PROJECT

The following information is provided as a convenience. No warranty on the accuracy or completeness is given nor should be assumed. The contractor is responsible for compiling the appropriate fire response agency contact information for their work.

ENTITY	CONTACT	PHONE NO.	EMERGENCY

NOTE: In case of emergency call 911.

To be completed at the beginning of construction.

Comment Letter S1—Department of Forestry and Fire Protection, Bill Hoehman, Unit Chief, Tehama-Glenn Unit (August 21, 2003)

Response to Comment S1-1

Impacts 4.13-1, 4.13-4, 4.13-7, and 4.13-10 in Section 4.13, Public Services and Utilities, in Volume I of this Final EIS/EIR identify the increased risk of wildfire as a potentially significant impact associated with implementing the proposed action and its alternatives. Reclamation requires construction contractors to prepare and implement a fire prevention plan as a contractual requirement under Section 10 of the *Reclamation Safety and Health Standards.* This will include:

- a list of potential workplace fire hazards and ignition sources and type of fire suppression equipment;
- assignment of responsibilities for maintaining equipment and systems and controlling fuel source hazards;
- housekeeping and grounds maintenance to keep the site free of combustible materials and weeds;
- restrictions on smoking and open flame devices, particularly near Class I flammable liquids;
- prohibition on use of cleaners/degreasers with a flashpoint below 100º Fahrenheit;
- regulations for the use of heaters;
- positioning of fire extinguishers; and
- water supply requirements.

When community firefighting services are not available, or are insufficient, Section 10 may require the contractor to provide a trained firefighting brigade meeting federal requirements under 29 CFR 1910.156. In addition, Section 10 requires compliance with a regular schedule of fire protection equipment inspection.

The Mitigation Measures for Impact 4.13-1 identify actions (including the development of a fire prevention plan) that will be required of the construction contractor to reduce wildfire risk below the level of significance. In response to this comment, Mitigation Measures for Impact 4.13-1 have been revised to include the following:

> **Mitigation Measures for Impact 4.13-1.** The construction contractor will follow these measures to minimize the need for protective and emergency response services:

- During construction activities, the contractor will adhere to standard precautions and approaches required by the California Department of Forestry and Fire Protection (CDF) and Shasta and Tehama County Fire Departments when dealing with very high fire hazard severity zones. The lead agencies will prepare a fire plan in consultation with the CDF and Shasta and Tehama County Fire Departments, as outlined in the *Industrial Operations Fire Prevention Field Guide* published by the CDF and State Fire Marshal, and file the plan with the appropriate fire protection agency prior to beginning construction. Precautions will include, but are not limited to, the use of Forest Service–approved spark arresters on all internal combustion engines, preplacement of fire suppression equipment, restriction of smoking and equipment refueling to cleared areas, and restriction of activities during "Red Flag" conditions. The fire plan will be included in the standards and specifications made part of the contract for construction work.

Preparation and implementation of the required fire prevention plan described above, and implementation of Mitigation Measures for Impact 4.13-1, will be contractually mandated by Reclamation. This will incorporate the requirements of the CDF.

Other requirements mandated by Reclamation under *Reclamation Safety and Health Standards* that will reduce fire hazard are found in the following sections of these standards:

- Section 6 (Emergency Plans), which requires preparation and implementation of an emergency plan;
- Section 11 (Standards for Material Handling, Storage and Disposal), which establishes standards for the safe use and storage of flammable liquids;
- Section 12 (Electrical Safety Requirements), which establishes standards for the safe use of electrical equipment and avoidance of existing power lines;
- Section 17 (Hand Tools, Power Tools, Pressure Vessels, Compressors, and Welding), which regulates the use of welding equipment and gas cylinders;
- Section 19 (Hoisting Equipment, Piledrivers, and Conveyors), which establishes safety procedures for helicopter use; and
- Section 24 (Blasting Operations), which requires preparation of a blasting plan and establishes safety procedures for blasting, including the transport and storage of explosives.

The requirements for an emergency response plan are discussed in more detail in the response to Comment S1-2 below.

Response to Comment S1-2

See the response to Comment S1-1 for a discussion of Reclamation's requirements for contractors regarding preparation of a fire prevention plan and other regulations that will reduce fire hazard and provide emergency fire response at the Restoration Project. As discussed in the Affected Environment portion of Section 4.12, the *Reclamation Safety and Health Standards* are included in all of Reclamation's construction contracts and are enforced comprehensively by Reclamation. In addition to a fire prevention plan, therefore, Reclamation will contractually require all contractors to prepare and implement an emergency response plan. The minimum contents of the emergency plan described in Section 6 (Emergency Plans) of the *Reclamation Safety and Health Standards* include:

- pre-emergency planning and coordination with outside parties;
- an outline of personnel roles, lines of authority, training, and communication;
- emergency recognition and prevention procedures;
- details about safe distances and places of refuge;
- evacuation routes and procedures;
- emergency alerting and response procedures;
- emergency medical treatment and first aid procedures; and
- information on the location of material safety data sheets (MSDS), personal protective equipment (PPE), and emergency equipment.

The concerns raised by CDF in this comment are addressed by Reclamation's standard contact requirement for construction contractors to prepare and implement a fire prevention plan and emergency response plan.

Response to Comment S1-3

See response to Comment S1-2. The *Reclamation Safety and Health Standards* (Section 6—Emergency Plans) requires all contractors to establish a means to report emergencies, which includes the establishment of emergency radio frequencies.

Response to Comment S1-4

Pursuant to Mitigation Measures for Impact 4.13-1, the lead agencies will consult with the CDF to review and discuss the contents of the fire prevention plan for the Restoration Project. Additional measures raised in this comment will be included in the fire prevention plan, as described above under response to Comment S1-1.

DEPARTMENT OF CONSERVATION
STATE OF CALIFORNIA

DIVISION OF
LAND RESOURCE
PROTECTION

801 K STREET
SACRAMENTO
CALIFORNIA
95814

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GRAY DAVIS
GOVERNOR

September 16, 2003

Mr. Jim Canady
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Subject: SCH# 2000042043 – Draft Environmental Impact Report for the Battle Creek Salmon and Steelhead Restoration Project

Dear Mr. Canady:

The Department of Conservation's Division of Land Resource Protection staff have reviewed the above cited document. Our understanding of the Proposed Project and the Project Background are as follows:

Project Description

The purpose of the Restoration Project is to restore approximately 42 miles of habitat in Battle Creek and an additional 6 miles of habitat in its tributaries while minimizing the loss of energy produced by the hydroelectric plant that is in the project area. The Five Dam removal Alternative is the proposed action. Wildcat, South, Soap creek Feeder, Lower Ripley Creek Feeder and Coleman Diversion dams would be removed, fish ladders would be installed at North Battle Creek Feeder, Eagle Canyon and Inskip Diversion Dams. Tailrace connectors would be installed to convey water directly from the Inskip and /South Powerhouses to downstream canals to meet fishery restoration goals. Pacific Gas and Electric (PG and E) water diversion rights associated with all dams removed in this project would be transferred to the Department of Fish and Game.

The Proposed Action impact analysis indicates that most of the lands involved in the proposed action (access roads, conveyances, appurtenant facilities and dam site facilities) would be small and involve conversion to passive uses consistent with surrounding agricultural grazing and open spaces. Further the changes in land use would involve the return of lands to uses prior to the installation of the structures that are being considered for removal.

Background

The Nature Conservancy established one conservation easement within the Battle Creek watershed, an easement on the 36,000-acre Denny Ranch located on the north and south sides of Highway 36 and Highway 99, and is negotiating with several other landowners about possibly acquiring others in order to preserve a contiguous land area. Additionally, the U.S.D.S.I. Bureau of Land Management acquired conservation easements on two properties in lower Battle Creek in order to conduct riparian restoration activities and to maintain the agricultural nature of the properties. The USFWS and TNC obtained a conservation easement on Digger Creek in Shasta and Tehama Counties. TNC acquired the 1,844-acre Wildcat Ranch, which has about 2 miles of land along the North Fork of Battle Creek. TNC had also obtained a conservation easement on the 990-acre Canyon Ranch prior to purchasing the Wildcat Ranch.

The Division of Land Resource Protection staff offers the following comments:

Land Acquisition and Williamson Act Contracts

The document indicates that most of the lands involved in the proposed action would be small and involve conversion to passive uses consistent with surrounding agricultural grazing and open spaces. Is any acquisition of lands currently being considered as part of this project? Some of the land along the project's riparian corridor may be under Williamson Act contract, or be prime agricultural land. Although the Proposed Action impact analysis indicates that most of the lands involved in the proposed action would be small and involve conversion to uses consistent with surrounding agricultural grazing and open spaces, there is no quantification of the acreages involved.

Please note that if an action by a public agency affects agricultural lands, or a project is located on prime agricultural land, a project proposal and the environmental document should describe the project setting in terms of the actual and potential agricultural productivity of the land. The Division's Important Farmland Maps, which define farmland according to soil attributes and land use, should be used to characterize and quantify the agricultural land that will be affected by a project. If there is no published modern soil survey for that part of the County where the project is located, we recommend that the document describe the agricultural soil quality of the site using the Williamson Act's definition of prime agricultural land (Government Code Section 51201(c)). Also, the type, amount, and location of farmland conversion resulting directly and indirectly from project implementation, and the impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes should be addressed.

For information, a project is deemed to be of statewide, regional or area-wide significance if it will result in cancellation of a Williamson Act contract for a parcel of 100 or more acres [California Code of Regulations (CCR) Section 15206(b)(3)]. As this project is funded under the California Bay Delta Authority's Ecosystem Restoration Program, mitigation measures to be implemented must be consistent and in accordance with the ROD.

The environmental document should provide a thorough discussion of any Williamson Act contracts that may be terminated in order to accommodate the project and should discuss the impacts that termination of Williamson Act contracts would have on nearby properties also under contract. If the project site is under Williamson Act contract, and any part of the site is to continue under contract after project completion, the document should discuss the proposed uses for those lands. Uses of contracted land must meet compatibility standards identified in Government Code Sections 51238 - 51238.3; otherwise, contract termination (see paragraph above) must occur prior to the initiation of the project. Land can be withdrawn from Williamson Act contract through the nine-year nonrenewal process. Immediate termination via cancellation is reserved for "extraordinary", unforeseen situations. (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855)

Cancellation notification provisions effective January 1, 2001 (AB 1944, Government Code section 51284.1) require specific information to be submitted to the Department of Conservation when the cancellation petition is accepted as complete. Notification must be submitted to the Department prior to a board or council's consideration of a proposal for tentative cancellation. Likewise, the board or council must consider the Department's comments prior to making a decision on the petition. Required findings must be made by the board or council in order to approve tentative cancellation. Cancellation provisions involving Farmland Security Zone contracts include additional restrictions. We recommend that the environmental document include a discussion of how the cancellations involved in a project would meet these findings. However, notification must be submitted separately from the CEQA process and CEQA documentation. (The notice should be mailed to Darryl Young, Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 13-71, Sacramento, CA 95814-3528.)

Any acquisition of contracted land by a public agency must meet the requirements set forth in Government Code sections 51290 to 51295. Specific findings would need to be reported to the Department of Conservation in the required notice to the Director. The requirements for findings may be waived under Government Code section 15993 (h).

Thank you for the opportunity to review this Interim Report. Please contact Jeannie Blakeslee at (916) 323-4943 if you have any questions regarding these comments.

Sincerely,

for

Erik Vink
Assistant Director

cc: State Clearinghouse

Comment Letter S2—Department of Conservation, State of California, Erik Vink, Assistant Director, (September 16, 2003)

Response to Comment S2-1

Acquisition of lands is a component of the Restoration Project. The current estimate for permanent easement acquisition is 22 acres, and the estimate for temporary easement acquisition is 34 acres. In addition, 79 acres of existing easements would be abandoned and the land would be returned to its natural state.

Response to Comment S2-2

The Department of Conservation Division of Land Resource Protection's Important Farmlands Maps were consulted for the land use analysis in the EIS/EIR. The types of land the Restoration Project is expected to affect are described and quantified in the section titled Private Land in Section 4.6 in Volume I of this Final EIS/EIR. No land identified as prime farmland on the Important Farmlands Maps would be affected by the Restoration Project, and none of the land affected by the proposed project is under a Williamson Act Contract.

Response to Comment S2-3

The Farmland Mapping and Monitoring Program's Important Farmland Maps were consulted in describing the agricultural setting of the project area as presented under the section entitled Land within the Restoration Area in Section 4.6, Land Use, in Volume I of this Final EIS/EIR. As referenced in this section, there is no land designated as prime farmland within the project area boundaries. A small parcel of land designated as farmland of statewide importance is located in Shasta County (California Department of Conservation 2001). However, none of the proposed activities would affect prime farmland or land designated as farmland of statewide importance. Therefore, it was deemed unnecessary to calculate the exact acreage of agricultural land that would be affected by the Restoration Project. As indicated in discussion for Impact 4.6-1, the impacts on land use are considered to be less than significant because the proposed land use changes would not result in the conversion of agricultural land to nonagricultural uses.

Response to Comment S2-4

Most of the agricultural operations in the project area are grazing and limited timberland as mentioned in the section titled County Land Uses in Section 4.6, Land Use, in Volume I of this Final EIS/EIR. The impacts on land conversion are discussed under Impact 4.6-1. Because of the small amount of land being converted as a result of the Restoration Project, this impact was determined to be less than significant. Most of the lands are being converted to passive uses that will be consistent with surrounding agricultural, grazing, and open space uses. Because of the speculative nature of determining how land values and taxes could be affected, these topics were not included in this Final EIS/EIR.

Response to Comment S2-5

None of the land affected by the proposed project is under a Williamson Act Contract. The mitigation measures to be implemented as part of the Restoration Project will be consistent with the CALFED ROD (CALFED Bay-Delta Program 2000). The relationship between the Restoration Project and the CALFED ROD is described under the section titled Relationship of the Restoration Project to the CALFED Bay-Delta Program in Chapter 1 in Volume I of this Final EIS/EIR.

Response to Comment S2-6

As disclosed under the Farmland Protection Policy Act discussion in Section 4.6 in Volume I of this Final EIS/EIR, none of the activities proposed for the Restoration Project would affect or convert existing agricultural uses. No Williamson Act contracts are proposed to be terminated as part of the proposed action.

Response to Comment S2-7

See response to Comment S3-6. No contracted land is proposed for acquisition by any public agency as a part of the Restoration Project.

Response to Comment S2-8

See response to Comment S3-6. No contracted land is proposed for acquisition by any public agency as a part of the Restoration Project.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
P.O. BOX 496073
REDDING, CA 96049-6073
PHONE (530) 225-3369
FAX (530) 225-3020

Flex your power!
Be energy efficient

IGR/CEQA Review
Sha-5-0.741
Battle Creek Restoration Project
Draft EIR
SCH# 2000042043

September 16, 2003

Mr. Jim Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Canaday:

Caltrans District 2 has reviewed the Draft Environmental Impact Report submitted on behalf of the Water Resources Control Board, for modification of the hydroelectric project to restore 42 miles of salmon and steelhead trout habitat within and adjacent to the reaches of Battle Creek and its tributaries.

Based on the project information submitted, approval of this project will not adversely impact facilities under our jurisdiction; therefore, we have no comment.

Thank you for providing us the opportunity to review this project. If you have any questions, or if the scope of this project changes, please call me at 225-3369.

Sincerely,

MARCELINO GONZALEZ
Local Development Review
District 2

Comment Letter S3—Department of Transportation, State of California, Marcelino Gonzalez, Local Development Review, District 2, (September 16, 2003)

Response to Comment S3-1

This comment has been noted.

STATE OF CALIFORNIA -- THE RESOURCES AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
2440 MAIN STREET
RED BLUFF, CA 96080-2356

October 15, 2003

Ms. Mary Marshall
U.S. Department of the Interior
Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Dear Ms. Marshall:

The Department of Water Resources has reviewed the Battle Creek Salmon and Steelhead Restoration Project Draft Environmental Impact Statement/Environmental Impact Report.

Within the context of the existing Memorandum of Understanding, we feel that a full range of alternatives were presented in the EIS/EIR along with their associated impacts. We are supportive of the Preferred Alternative and believe that it would provide a good balance for stakeholders by maximizing positive benefits for fisheries and minimizing disruption to PG&E's Hydroelectric Project.

Attached to this letter is a list of comments DWR has prepared based on the review of the draft EIS/EIR. The comments are grouped into two categories, items that should be addressed to add clarity to the EIS/EIR, and items that should be addressed to add accuracy to the EIS/EIR.

If you have any questions, you may contact me at (530) 529-7342, or Scott Kennedy at (530) 529-7371.

Sincerely,

Dwight P Russell

Dwight P. Russell, Chief
Northern District

Attachment

DWR Comments on Battle Creek Salmon and Steelhead Restoration Project Draft Environmental Impact Statement / Environmental Impact Report

The Department of Water Resources has reviewed the Battle Creek Salmon and Steelhead Restoration Project Draft Environmental Impact Statement / Environmental Impact Report (EIS/EIR). DWR has grouped its comments into two categories. First, we have a set of comments that should be addressed to add clarification to portions of the final EIS/EIR. Second, we have a set of minor, non-technical changes that should be added into the final EIS/EIR for accuracy.

Comments on Items Needing Clarification

General Comment on Several Pages and Several Paragraphs
The project limits described in paragraph 1, page ES-8 and paragraph 2, page 3-1, and shown in Figures ES-2 and 2-2 do not match the project area shown in Figures ES-1 and 1-1.

Page 1-2, Paragraph 2, Line 5
We suggest adding DWR to the list of contributors.

Page 2-17 and 18, Several Paragraphs
By not mentioning the newer powerhouses, the impression is given that the 1910 era powerhouses are still in operation.

Page 3-2, Paragraph 2, Lines 15 and 16
This line states that the steel trestle structures are set in concrete blocks and anchored into the bedrock. We recommend removing "anchored into the bedrock" because we don't know for a fact that they are anchored into bedrock. Bedrock is probably located far below original ground.

Page 3-21, Last Paragraph, Line 1
Page 3-26, Last Paragraph, Line 4
Page 3-43, Last Paragraph, Line 1
It may be confusing to call the fish screen a "flat-bar fish screen." Though the fish screen panels are flat and made of triangular bars, they are referred to as "wedge wire" and "profile bar" screens in the engineering specifications. We recommend using the term "wedge wire."

Page 3-24, Bullet 7
This item makes it sound like all work will need to be done by helicopter, but won't the bulk of the construction work be done by accessing the site from the new paved access road described in bullet 4?

Page 3-32, Paragraph 2
This paragraph states that the power line to the site would be left in place. Bullet 8 on page 3-31 and bullet 2 on page 3-34 state that the power lines would be removed. This should be clarified.

Page 3-50, Bullets 2 and 3
Where are "Area A" and the "Contractor use area"? These areas are not identified.

Page 4.1-1, Paragraph 2, Lines 7 and 8
Line 7 mentions three resident fish, but only two are identified in line 8. What is the third resident fish? Reference to "entire" creek is vague. Does this include portions of the creek above the migration barriers?

Page 4.1-6, Paragraph 6, Line 1
Allowing the passage of steelhead is a recent action. Please include date when this began and what happened prior.

Page 4.1-7, Paragraph 5 and 6, and throughout this section
The term "upper Sacramento" usually refers to the reaches above Shasta Lake (as used on page 4.1-16, paragraph 3, line 2). Middle or upper lower could be used for this stretch.

Page 4.1-11, Paragraph 2, Lines 6, 7, and 8
What mobility studies are being referenced here?

Page 4.1-13, Paragraph 3, Line 2
This sentence says that the dams block 55 miles of habitat. Isn't this project about restoring 42 miles of habitat? Please explain this discrepancy.

Page 4.1-14 and 15
It might be appropriate to include an analysis for the possible use of herbicides/pesticides from the new vineyards around Manton.

Page 4.1-16, Paragraph 2
The study referenced here was done in Alaska. Has this relationship been shown for any streams in California, especially the Central Valley?

Page 4.1-18 and 19, Paragraph 1 and Bullets
It is somewhat implied in the discussion, but perhaps it should be stressed that what the project is designed to do is increase the habitat available and increase the quality of the habitat, and the desired outcome is an increase in fish populations. The project itself does not actually increase the fish populations. It might be better to phrase the bullets stressing what the project actually does and then the anticipated result. For example, bullet 1 on page 4.1-19 could read "The project will increase minimum instream flows in various reaches that will increase

the amount of available spawning and rearing habitat for increased production. Bullet 2 could read "The project will provide cooler water temperatures in various reaches that should increase the survival of fry, juvenile and adult salmon and steelhead. Bullet 3 could read "The project will install tailrace connectors and alter flow ramping causing decreased flow fluctuations from power system operations thereby resulting in the increased survival of juvenile fish." Etc.

Page 4.1-20, Paragraph 2
It almost seems that the methods utilized are an over analysis of the available data. Instead of relying on a series of models requiring assumptions and simplifications to establish fish production indices, the actual physical habitat improvements could have been used to compare the alternatives. The number of miles of stream opened to migrating fish, the number of acres of spawning habitat, the number of acres of rearing habitat, and the improvements in temperature regime are the actual conditions being changed by the project. These are the measures by which the alternatives could be compared. The fish production indices, while interesting, are dependent on all the caveats stipulated in this paragraph and there is no guarantee the fish will respond as predicted. It would make for a cleaner analysis and be less subject to second guessing if the actual physical changes in fish habitat were used to directly compare alternatives and the fish production indices with all the inherent assumptions were used in a secondary level of comparison.

Page 4.1-21, Paragraphs 1 and 2
Following the logic as above, instead of calculating fry and juvenile capacity indices with the assumptions required, simply describe the changes in the estimated spawning habitat and rearing habitat areas.

Page 4.1-25, Paragraph 5, Line 4
Please state the actual number of acres of spawning habitat, a measurable feature not dependent on any assumptions.

Page 4.3-1, Paragraph 2, Line 1
A more appropriate first sentence might read, "Average annual rainfall ranges from about 25 inches at the Coleman power house to over 50 inches in the uppermost watershed."

Page 4.3-2, Figure 4.3-1
Please include the location of the stream gage used. Title should be "Average monthly stream flow for selected representative wet, normal, and dry years."

Page 4.3-2, Paragraph 1
While 15% of the entire watershed may be upstream of Angel Falls, the distribution of the rainfall isohyets indicate that more flow is contributed by the upper watershed areas.

Page 4.3-4, Paragraph 4
Please provide information concerning North Battle Creek Reservoir and McCumber Reservoir. While not flood control reservoirs, they do act to attenuate peak flows on the North Fork.

Page 4.3-4, Paragraph 6
The bed material in many pools and cascades is bedrock, and not made up of the fine or coarse material described in the EIS/EIR. This can be easily seen in the north fork creek channel upstream of the Wildcat Road bridge.

Page 4.3-4, Figure 4.3-5
The profile for South Fork should be extended at least to Mineral (elevation 4800 feet), if not beyond. The current figure gives a distorted impression of the extent of South Fork.

Page 4.3-5, Paragraph 4 and 5
Please provide a similar discussion for the North Fork, as a large number of Spring Run are expected to utilize this reach.

Page 4.7-8, Table 4.7-1
The water erosion hazard for South Diversion Dam is probably lower than estimated here. Even though "Rock Land" has high runoff, it generally has a low to moderate erosion rate.

Page 4.7-11, Impact 4.7-1
"Extensive" is probably the wrong word to use. Extensive would imply 20-25% of the watershed when the area involved is about 100(??) acres. Why not simply state the total estimated number of acres? Then compare the number of acres disturbed for each alternative.

Page 4.7-12
Include mention of standard erosion control measures in the Forest Practices Act such as outsloping all roads, rolling dips, water bars, etc.

Page 4.9-2, Figure 4.9-2
The portion of Wilson Hill Road that heads up to Highway 44 should be colored red to indicate that it is a public access road. This is also true for the portion of Manton Road west of Coleman Dam. This segment is currently colored blue and should be colored red over to the left edge of the page as it heads towards Highway 36.

Page 6-21 and 6-22, Bullet Items 2 and 3
In 1997 a preliminary engineering investigation was performed for Eagle Canyon Diversion (reference 1, top of page 9-4). In 1998 a reconnaissance level engineering investigation was performed for Coleman, Inskip, South, Wildcat, and North Feeder diversions (reference 2, top of page 9-4). In 2000 a

preliminary was performed for Inskip, North Feeder, and Eagle Canyon (reference 3, page 9-4). The bulleted items don't seem to accurately reflect this.

Non-Technical Comments

Page ES-29, Footnote 4
Web link is incorrect. It has moved to:
http://www.usbr.gov/mp/regional/battlecreek/

Several Pages, Figures ES-2, 2-2, 3-1, 3-2, and more...
In every instance where this graphic is used in this EIS/EIR, McCumber Reservoir is spelled incorrectly.

Page vi
Please include a list of the Appendices here in Vol. 1.

Page 2-8, Fig 2-4
The text in this figure, especially the highway numbers, are difficult to read.

Page 2-17, Paragraph 2, Line 4
"Macumber" should be spelled "McCumber."

Page 2-19, Paragraph 1, Line 5
Water rights are in Appendix E, not F.

Page 3-5, Paragraph 2, Line 2
Remove degree symbol from 20 ft^3/s.

Page 3-6, Paragraph 2, Line 15
Change "structures as at Wildcat" to "structures in Wildcat."

Page 3-7, Paragraph 1, Line 2
Remove degree symbol from 100 ft^3/s.

Page 3-7, Paragraph 1, Line 13
Numerical value missing for thickness of steel plate.

Page 3-9, Paragraph 2, Line 2
Change "15 cfs" to "15 ft^3/s" to be consistent with previous sections.

Page 3-9, Paragraph 2, Line 17
Remove degree symbol after the number 4.

Page 3-10, Paragraph 2, Line 6
Change "190 cfs" to "190 ft^3/s" to be consistent with previous sections.

Page 3-12, Paragraph 3, Line 3
Change "3 cfs" to "3 ft^3/s" to be consistent with previous sections.

Page 3-15, Paragraph 3, Line 13
Change "(45 cfs)" to "(45 ft^3/s)" to be consistent.

Several Pages, Several Paragraphs
There are several other instances where both "cfs" and "ft^3/s" are used. This should be consistent throughout the EIS/EIR.

Page 3-20, Figure 3-2a
In the figure, text with a leader reads "North Battle Creek Diversion Dam." To be consistent with rest of the section, it should read "North Battle Creek Feeder Diversion Dam."

Page 3-22, Paragraph 1, Line 1
Replace word "modified" with "replaced."

Page 3-23, 4th Bullet, Line 3
Should read "North Battle Creek Feeder Diversion Dam"

Page 3-24, Bullets 4, 5, and 6
Should read "North Battle Creek Feeder Diversion Dam"

Page 3-27, Paragraph 1, Line 8
Replace "about 5-foot" with "9-foot."

Page 4.1-8, Paragraph 1, Line 2
Suggest making text beginning at "One or more" into a separate paragraph at the end of this section and refer to Figure 4.1-1 in text.

Page 4.1-35, Paragraph 1
Provide and refer to a simple table comparing the flows of the different alternatives with each other and an average "natural" flow.

Page 4.1-40, Table 4.1-11
Fix table headings. It should say "Month" instead of "Year" in the top center section.

Page 4.3-2, Figure 4.3-2
River text is difficult to read.

Page 4.3-7, Paragraph 1, Line 4
McCumber spelled incorrectly

Page 4.3-9, Paragraph 4, Line 5
I couldn't easily find the section "General Environmental Protection Measures". Please include the section number and page number.

Page 4.8-12, Paragraph 1
This paragraph seems to begin in mid-sentence. The first part of this paragraph appears to be missing.

Page 4.9-8, Paragraphs 4 and 5
These two paragraphs say essentially the same thing. They should be combined into one paragraph.

Page 4.15-5, Paragraph 2, Line 7
There should be a ")" between "2000" and "Reclamation"

Comment Letter S4—Department of Water Resources, State of California, Dwight P. Russell, Chief, Northern District, (October 15, 2003)

Response to Comment S4-1

This comment has been noted.

Response to Comment S4-2

The project limits that are shown in Figures ES-2 and 2-2 and described in the section entitled Existing Facilities in Chapter 3 in Volume I of this Final EIS/EIR did not match the project limits shown in Figures ES-1 and 1-1. The project limits shown in Figures ES-2 and 2-2 are correct. In response to the comment, however, Figures ES-1 and 1-1 have been revised to depict the project limits more accurately.

Response to Comment S4-3

The introductory paragraphs to Chapter 1, Introduction, Organization, and Process, in Volume I of this Final EIS/EIR have been changed to reflect contributions made by DWR for the Restoration Project.

Response to Comment S4-4

Text has been added to the section entitled Hydroelectric Project Facilities in Chapter 2, Purpose and Need, Project Description, and Project Background, in Volume I of this Final EIS/EIR to accurately describe the ages of the powerhouses. The additional text is as follows:

> The original Hydroelectric Project has been modified over the years as technology improved and original equipment became obsolete. One major change was the replacement of the original four powerhouses (Volta, South, Inskip, and Coleman Powerhouses) in the late 1970s with modern structures and generating equipment that allowed the plants to operate unattended (Reynolds and Scott 1980).

Response to Comment S4-5

The description of the feeder flume under the section entitled Existing Facilities for the North Battle Creek Feeder Diversion Dam under the Five Dam Removal Alternative discussion in Chapter 3 in Volume I of this Final EIS/EIR has been corrected to remove the statement that the concrete footings are "anchored into the bedrock."

Response to Comment S4-6

The text describing fish screens throughout Chapter 3 in Volume I of this Final EIS/EIR has been revised to use the description *flat plate*, as it is consistent with the DWR Screen and Ladder Report (California Department of Water Resources 2000).

Response to Comment S4-7

The language used to describe helicopter use at the North Battle Creek Feeder Diversion Dam site under the Five Dam Removal Alternative discussion in Chapter 3 of the Draft EIS/EIR stated that the dam site is in a remote area with "no nearby vehicular access." The discussion has been corrected in this Final EIS/EIR (Chapter 3, Volume I) to state that the dam site is in a remote area with "constrained road access." The bulk of construction access will occur via the new paved access road; however, because of the steepness of the slope where the access road will be constructed, the road will contain a sharp hairpin turn and may not be able to accommodate large equipment or the removal of large debris. It will be left to the construction contractor's discretion to decide when helicopter use for transporting large items to and from this site is necessary.

Response to Comment S4-8

In the description of appurtenant facility removal at the Wildcat Diversion Dam site (see the section entitled Wildcat Diversion Dam under the Five Dam Removal Alternative discussion in Chapter 3 in Volume I of this Final EIS/EIR), the erroneous statement that "the power line to the site would be left in place" has been removed.

Response to Comment S4-9

A description of the locations of "Area A" and the "contractor use area" has been added under the section entitled Construction Considerations under the South Diversion Dam discussion for the Five Dam Removal Alternative in Chapter 3 in

Volume I of this Final EIS/EIR. Area A is a small, relatively open, gently sloped area on the east side of the South Powerhouse access road, located about 600 feet northeast of the powerhouse building. The contractor use area is also on the east side of the South Powerhouse access road, located 200 feet east of the powerhouse building.

Response to Comment S4-10

The three resident fish species—rainbow trout, Sacramento pikeminnow, and smallmouth bass—have been identified in the text under the Methods heading in Section 4.1 in Volume I of this Final EIS/EIR. Reference to the flow/habitat relationships has been modified to remove the phrase "for the entire creek."

Response to Comment S4-11

Although the Coleman National Fish Hatchery presents only a partial barrier to upstream salmonid migration, it has also been reintroducing steelhead into the Battle Creek system since 1995 (please see *Biological Assessment of Artificial Propagation at Coleman National Fish Hatchery and Livingston Stone National Fish Hatchery*: *Program Description and Incidental Take of Chinook Salmon and Steelhead Trout,* prepared by the USFWS Red Bluff Fish and Wildlife Office in October 2000, for more information). Additional information related to steelhead life history, populations, and passage has been incorporated into the discussion titled Special Status Fish Species—Steelhead under the Affected Environment discussion in Section 4.1 in Volume I of this Final EIS/EIR.

Response to Comment S4-12

The term *upper Sacramento* has been replaced with "Sacramento River downstream of Keswick Dam" throughout Section 4.1 in Volume I of this Final EIS/EIR.

Response to Comment S4-13

The referenced mobility studies in the section titled Factors Affecting Abundance—Key Habitat Quantity in Section 4.1 in Volume I of this Final EIS/EIR are from *Spawning Gravel Resources of Battle Creek, Shasta and Tehama Counties* prepared for the California Department of Fish and Game by G. Mathias Kondolf and Mitchell Katzel of Thomas R. Payne and Associates (Kondolf and Katzel 1991).

Response to Comment S4-14

The sentence stating that diversion dams block "55 miles of habitat" is incorrect. A clarification has been made in the discussion titled Factors Affecting Abundance—Migration Habitat in Section 4.1 in Volume I of this Final EIS/EIR to reflect a total of 48 miles of spawning and rearing habitat restored, including 42 miles of spawning and rearing habitat in Battle Creek and an additional 6 miles of spawning and rearing habitat in its tributaries.

Response to Comment S4-15

Information pertaining to vineyard acreages, types of pesticides, and/or their pathways into Battle Creek is not available; therefore, any analysis would be speculative. All pesticide use would have to comply with state and local laws and regulations, which require safe use and limit herbicide/pesticide drift.

Response to Comment S4-16

The authors are not aware of any applicable studies on the density of adult salmon carcasses and subsequent increased nutrient input to stream systems completed in the Central Valley. Although the referenced study was completed in Alaska, the conclusions derived in this report pertain to nutrient inputs that are not necessarily site-specific and were considered appropriate for the purposes of this Final EIS/EIR.

Response to Comment S4-17

The bullets listed in the discussion titled Environmental Consequences—Summary in Section 4.1 in Volume I of this Final EIS/EIR have been revised to clarify that the project is designed to increase the quantity and quality of available habitat and that the desired outcome is an increase in fish populations.

Response to Comment S4-18

Please refer to Appendix H, "Habitat Assessment Model for Chinook Salmon and Steelhead," in Volume II of this Final EIS/EIR for more information on physical habitat improvements. The habitat assessment model compared habitat values by month for the various species based on the flow-habitat relationships. A monthly model was developed for Chinook salmon (i.e., winter, spring, late-fall runs) and steelhead to facilitate assessment of each alternative. The habitat assessment model considers the habitat capacity index that depends on streamflow and then links streamflow and water temperature conditions to effects on key habitat

quantity and survival. A relative estimate of fry and juvenile capacity and production indices is provided for each reach. The simulated indices are not intended as accurate predictions of magnitude for each life stage, but provide sufficient information to compare the relative life stage capacity and production expected to occur under the No Action and action alternatives. The habitat assessment model links temporal water temperature and flow effects, a linkage that is not provided by month-to-month habitat estimates. The month-to-month habitat estimates are provided in Appendix H (Volume II), and habitat with suitable water temperature is described in Appendix R, "Water Temperatures in the Battle Creek Restoration Area," in Volume II of this Final EIS/EIR.

Response to Comment S4-19

See the response to Comment S5-28.

Response to Comment S4-20

Additional information on estimated spawning and rearing habitat areas is located in Tables K-1 through K-3 in Appendix K (Volume II) of this Final EIS/EIR. Appendix K describes the methodology and results of the SNTEMP model, which was used to predict temperatures downstream of North Battle Creek Feeder Diversion Dam on North Fork Battle Creek, downstream of South Diversion Dam on South Fork Battle Creek, and on the mainstem Battle Creek between the confluence and Coleman powerhouse. General results of the model indicate that the Five Dam Removal, No Dam Removal, Six Dam Removal, and Three Dam Removal Alternatives would all provide similar quantities of optimal temperature habitat for Chinook salmon. On North Fork Battle Creek, these four alternatives would provide an average of approximately 6 miles of additional habitat. The Three Dam Removal Alternative would provide slightly less habitat on South Fork Battle Creek than the other three alternatives (approximately 2 miles compared to 3 miles). The No Action Alternative would provide the least amount of optimal water temperature habitat and result in only 4 miles and 2 miles on North Fork and South Fork Battle Creek, respectively.

Optimal temperature habitat for Chinook salmon on South Fork Battle Creek ranges from 0 to 10.3 miles for the Five Dam and Six Dam Removal Alternatives. The No Action, No Dam Removal, and Three Dam Removal Alternatives provide, respectively, maximum habitat quantities of 8.5, 9.8, and 6.6 miles on South Fork and a minimum of 0 miles.

With the exception of the No Action Alternative, each alternative provides similar habitat quantities for steelhead. On the North Fork Battle Creek, optimal temperature habitat provided by the four similar alternatives ranges from approximately 5.5 to 18 miles. The No Action Alternative would result in 2 to 14 miles of habitat. On the South Fork, the Five Dam Removal, Six Dam Removal, and No Dam Removal Alternatives would provide 0 to approximately

14 miles of habitat. Both the Three Dam Removal Alternative and the No Action Alternative would result in approximately 0 to 12.4 miles of optimal water temperature habitat.

Response to Comment S4-21

The text has been revised in the Affected Environment discussion of Section 4.3, Hydrology, in Volume I of this Final EIS/EIR to include the following statement describing the project area's average rainfall.

> Average annual rainfall ranges from about 25 inches at the Coleman Powerhouse to more than 50 inches in the uppermost watershed.

Response to Comment S4-22

A description of the stream gage location has been included under the Affected Environment discussion in Section 4.3, Hydrology, in Volume I of this Final EIS/EIR. The title of Figure 4.3-1 has also been revised, as requested, to read "Average Monthly Stream Flow for Selected Representative Wet, Normal, and Dry Years" and a reference to the stream gage location has been included on Figure 4.3-1.

Response to Comment S4-23

The text has been revised as requested under the Affected Environment discussion in Section 4.3, Hydrology, in Volume I of this Final EIS/EIR. The revised text is presented below.

> The South Fork Battle Creek absolute fish barrier is Angel Falls, located at South Fork Battle Creek RM 18.9, about 4.5 miles above the South Diversion Dam. The watershed upstream of Angel Falls is about 15% of the total Battle Creek watershed. The flow contribution from above Angel Falls is assumed to be slightly more than 15%. Direct measurement of these upstream flows is recommended as part of the adaptive management program.

Although flows upstream of Angel Falls have not yet been measured directly, these measurements are recommended as part of the adaptive management program.

Response to Comment S4-24

The potential effects of the North Fork Battle Creek Reservoir and McCumber Reservoir on peak flows in North Fork Battle Creek have been described under the Affected Environment discussion in Section 4.3, Hydrology, in Volume I of this Final EIS/EIR. The new discussion is presented below.

> In addition, North Fork Battle Creek Reservoir and McCumber Reservoir on North Fork Battle Creek operate to capture runoff from the upstream portions of the watershed. North Fork Battle Creek Reservoir has a volume of 1,000 acre-feet and a watershed area of 6.4 square miles or approximately 2% of the total Battle Creek watershed area (U.S. Geological Survey 1991). McCumber Reservoir has a volume of 430 acre-feet and a watershed area of 27.6 square miles or 7.7% of the total Battle Creek watershed area (U.S. Geological Survey 1991). Using the watershed fraction to estimate flows entering the reservoirs, the average flows at North Fork Battle Creek and McCumber Reservoir are approximately 10 cfs and 40 cfs, respectively, because the average flow at Coleman National Fish Hatchery is about 500 cfs. However, the effect of the reservoirs on the peak flows is likely to be minimal because the reservoirs receive only a fraction of the total flows at North Battle Creek Feeder Diversion Dam (i.e., upstream watershed of 133 square miles, 37% of the total Battle Creek watershed).

Response to Comment S4-25

The text has been revised to describe the bed material in Battle Creek, under the section titled Hydraulic Gradients and Sediment Movement in Section 4.3, Hydrology, in Volume I of this Final EIS/EIR.

Response to Comment S4-26

South Fork Battle Creek shown in Figure 4.3-5 does not extend to Mineral because the town of Mineral is several miles outside the project area. In addition, Angel Falls, which is located several miles downstream of Mineral, is the absolute barrier to upstream fish passage and the upper project limit on South Fork Battle Creek (Section 2.09 of the MOU).

Response to Comment S4-27

A detailed slope and bed elevation analysis (Bureau of Reclamation 2001b) has been performed for South Fork Battle Creek and is discussed under the section titled Hydraulic Gradients and Sediment Movement in Section 4.3, Hydrology, in Volume I of this Final EIS/EIR. North Fork Battle Creek slopes are not

discussed in this Final EIS/EIR because a comparable analysis has not been provided. However, the difference between the slopes of the North Fork and South Fork Battle Creeks is easily observed in Figure 4.3-5 in Volume I of this Final EIS/EIR. North Fork Battle Creek slopes can be estimated from this figure to be about twice those of South Fork Battle Creek. As part of the adaptive management program, a detailed study of the North Fork Battle Creek's slopes and bed elevations will be completed in the aquatic habitat assessment.

Response to Comment S4-28

Soil erosion hazard was inferred in cases where the U.S. Department of Agriculture soil survey does not provide that information, commonly because of the variability in conditions. Although the erosion hazard in areas of rock outcrops is probably nonexistent, the erosion hazard in areas where a soil cover exists is probably moderate to high. This inference is based on the fact that such soils tend to be poorly aggregated (and tend to be readily "detached" by runoff) and generally are on steep slopes. Based on a cursory review of a few soil surveys of Sierra and foothill counties, the erosion hazard (where indicated) of the soil component (as opposed to areas of rock outcrop) of Rock land soil map units is typically moderate to very high. Accordingly, the inference of this soil erosion hazard is assumed to be accurate. Additionally, for planning purposes, it is perhaps better to err on the side of caution by assuming that the soils have a high erosion hazard.

Response to Comment S4-29

The text under Impacts 4.7-1, 4.7-3, 4.7-5, and 4.7-7 in the Environmental Consequences discussion of Section 4.7, Geology and Soils, in Volume I of this Final EIS/EIR has been revised to specify the total amount of vegetation removal and ground disturbance that would occur under each alternative.

Response to Comment S4-30

Based on a conversation with a forester (Wyman pers. comm. 2004) with the CDF in Red Bluff, the project area is not considered to be timberland. Accordingly, the best management practices (BMPs) do not need to comply with the Forest Practices Act. Nevertheless, new text under Mitigation Measure for Impact 4.7-1 in the Environmental Consequences discussion of Section 4.7 in Volume I of this Final EIS/EIR has been inserted to include a broader range of BMPs that provide erosion and sediment control that may be applicable to the project.

Response to Comment S4-31

Figure 4.9-2 referenced under the section titled Restoration Project Site Access in Section 4.9, Transportation, in Volume I of this Final EIS/EIR has been revised in response to this comment so that all sections of Wilson Hill Road and Manton Road are appropriately colored red to indicate the road types as public access roads.

Response to Comment S4-32

The discussion titled Investigation of Anadromous Fish Passage Alternatives in Upper Battle Creek in Chapter 6, "Related Projects," in Volume I of this Final EIS/EIR has been revised to include mention of DWR's engineering investigations at the North Battle Creek Feeder, Eagle Canyon, Wildcat, Inskip, and Coleman Diversion Dam sites.

Response to Comment S4-33

Footnote 4, on page ES-29 in the Executive Summary of the Draft EIS/EIR, has moved to Footnote 6, on page ES-36 in the Executive Summary of this Final EIS/EIR. The weblink referenced in this footnote has been corrected to include the most current Reclamation weblink for the Restoration Project. The correct weblink is: http://www.usbr.gov/mp/battlecreek/.

Response to Comment S4-34

The text has been revised as requested in Figures ES-2, 2-3, 3-1 through 3-5, and 4.3-7 in this Final EIS/EIR so that McCumber Reservoir is spelled correctly. The text has also been revised throughout this entire Final EIS/EIR as well to reflect the correct spelling of McCumber Reservoir.

Response to Comment S4-35

The table of contents for Volume I references Volume II, Appendices, and identifies the appendices as a separate volume in this Final EIS/EIR. A complete list of the appendices is included in Volume II of this Final EIS/EIR.

Response to Comment S4-36

The text in Figure 2-4, referenced under the section titled Battle Creek Significance in Chapter 2 in Volume I of this Final EIS/EIR, has been revised to improve the clarity of the highway numbers and other identified features.

Response to Comment S4-37

The text in Chapter 2 in Volume I of this Final EIS/EIR has been revised as requested so that McCumber Reservoir is spelled correctly. Additionally, the correct spelling of McCumber has been incorporated throughout this Final EIS/EIR document.

Response to Comment S4-38

The text in the section titled Hydroelectric Project Water Routing in Chapter 2 in Volume I of this Final EIS/EIR has been revised to indicate information on water rights is available in the correct appendix, which is Appendix D, "Pacific Gas and Electric Company Vested Water Rights on Battle Creek and Battle Creek Tributaries," in this Final EIS/EIR.

Response to Comment S4-39

The degree symbol included in the ft^3/s units under the Wildcat Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR has been removed. Additionally, the unit *ft^3/s* has been changed to *cfs* in that section and, where appropriate, throughout the document.

Response to Comment S4-40

The text has been revised as requested to state "structures in Wildcat," rather than "structures as at Wildcat," in the Wildcat Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR.

Response to Comment S4-41

The unit *ft^3/s* has been changed to *cfs* under the South Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR and where appropriate throughout the document.

Response to Comment S4-42

A numerical value has been added to indicate the thickness of a steel plate that is mentioned under the South Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR.

Response to Comment S4-43

The unit ft^3/s has been revised to *cfs* under the Soap Creek Feeder Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR and where appropriate throughout the document.

Response to Comment S4-44

The degree symbol has been removed under the Soap Creek Feeder Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR.

Response to Comment S4-45

The unit ft^3/s has been revised to *cfs* under the Inskip Diversion Dam/South Powerhouse existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR and where appropriate throughout the document.

Response to Comment S4-46

The unit ft^3/s has been revised to *cfs* under the Lower Ripley Creek Feeder Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR and where appropriate throughout the document.

Response to Comment S4-47

The unit ft^3/s has been revised to *cfs* under Asbury Pump Diversion Dam existing facilities discussion in Chapter 3 in Volume I of this Final EIS/EIR and where appropriate throughout the document.

Response to Comment S4-48

In response to this comment, the unit ft^3/s has been revised to *cfs* where appropriate throughout the document.

Response to Comment S4-49

The text in Figure 3-2a, referenced in Chapter 3 in Volume I of this Final EIS/EIR, has been revised so that North Battle Creek Feeder Diversion Dam is identified correctly.

Response to Comment S4-50

The word *modified* has been changed to *replaced* under the section titled Fish Screens under the North Battle Creek Feeder Diversion Dam discussion in Chapter 3 in Volume I of this Final EIS/EIR.

Response to Comment S4-51

The text has been revised to read “North Battle Creek Feeder Diversion Dam” under the section titled Construction Considerations in the North Battle Creek Feeder Diversion Dam discussion in Chapter 3 in Volume I of this Final EIS/EIR.

Response to Comment S4-52

The text has been revised to read “North Battle Creek Feeder Diversion Dam” under the section titled Construction Considerations in the North Battle Creek Feeder Diversion Dam discussion in Chapter 3 in Volume I of this Final EIS/EIR.

Response to Comment S4-53

The text under the section titled Fish Screen in the Eagle Canyon Diversion Dam in Chapter 3 in Volume I of this Final EIS/EIR has been revised to indicate structural steel frames inside Eagle Canyon Diversion Dam fish screens will be placed at 9-foot intervals instead of 5-foot intervals.

Response to Comment S4-54

The paragraph referred to in this comment (beginning with “One or more”) has been moved to the section titled Species Occurrence and Status in Section 4.1, Fish, in Volume I of this Final EIS/EIR and now references Figure 4.1-1.

Response to Comment S4-55

Please refer to Appendix J, "Results from Monthly Flow and Power Generation Model," in Volume II of this Final EIS/EIR for more information related to the various flow regimes under each alternative. This analysis was based on the minimum flow requirement for the No Action Alternative and the various action alternatives.

Response to Comment S4-56

Table 4.1-11, Number of Days of Powerhouse Outages on Battle Creek, 1983–2001, from the Draft EIS/EIR is no longer referenced in this Final EIS/EIR.

Response to Comment S4-57

The text identifying the rivers in Figure 4.3-2 in Section 4.3, Hydrology, in Volume I of this Final EIS/EIR has been revised so that it is legible.

Response to Comment S4-58

The correct spelling of McCumber Reservoir has been incorporated throughout this Final EIS/EIR.

Response to Comment S4-59

The General Environmental Protection Measures have been renamed *Environmental Commitments* and can be found under the section titled Five Dam Removal Alterative—Proposed Action in Chapter 3 in Volume I of this Final EIS/EIR (see pages 3-68 to 3-77).

Response to Comment S4-60

The missing text on page 4.8-12 of the Draft EIS/EIR has been corrected under Impact 4.8-1 in Section 4.8 in Volume I of this Final EIS/EIR.

Response to Comment S4-61

The redundant descriptions of the road conditions near South Diversion Dam under the section titled Restoration Project Site Access in Section 4.9,

Transportation, in Volume I of this Final EIS/EIR have been modified as requested.

Response to Comment S4-62

A parenthesis has been added between *2000* and *Reclamation* under the section titled Results and Identified Cultural Resources in Section 4.15 in Volume I of this Final EIS/EIR.

State of California - The Resources Agency
GRAY DAVIS, *Governor*

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
601 Locust Street
Redding, CA 96001
(530) 225-2300

October 16, 2003

Mr. Jim Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Ms. Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento CA 95825

Dear Mr. Canaday and Ms. Marshall:

Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR)
Battle Creek Salmon and Steelhead Restoration Project

The Department of Fish and Game has reviewed the DEIS/EIR for the Battle Creek Salmon and Steelhead Restoration Project. The Department along with the other signatories to the Memorandum of Understanding for the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project) intend on implementing the proposed action in the DEIS/EIR. We appreciate the lead agencies assistance in moving this complex project forward through the various collaborative review processes. The Department will be pleased to provide further assistance in the DEIS/EIR process.

We have some general comments the Department believes will assist in successful implementation. In addition, we have enclosed specific comments on the document that indicate how the general comments apply in more detail within the document.

GENERAL COMMENTS

Federal Energy Regulatory Agency Process

The Federal Energy Regulatory Commission (FERC) is a cooperating Federal agency in the environmental documentation process because the amendment of the hydropower license relies almost exclusively on the content of this DEIS/EIR for its environmental analysis (i.e., Exhibit E). For the DEIS/EIR to fully support this upcoming process, the Department recommends including the FERC's determination that fishery restoration plans identifying the need to restore Battle Creek qualify as a

Comprehensive Plan for Battle Creek under section 10 (a) (2) (A) of the Federal Power Act (see enclosed October 5, 1998, FERC correspondence to the Department). The Department finds the proposed actions in the Restoration Project to be consistent with the content of the restoration plans that FERC determined to qualify as a "Comprehensive Plan."

An additional disclosure that should be included in the DEIS/EIR is the current agreement between the Department and Pacific Gas and Electric Company (PG&E) to pass sediment through the sluice gates at the power dams. This action is necessary for long-term management of spawning gravel by assuring its transport throughout the stream system. This sediment transport practice is included in the Comprehensive Plan mentioned above as well as past "Streambed Alteration" agreements between the Department and PG&E.

Adaptive Management

The Restoration Project is designed to increase the amount and availability of habitat for anadromous salmonids giving rise to follow-up adaptive management on some of the physical habitat conditions and biological responses. CalFed Science review panels examining the Battle Creek Restoration Project have identified several limitations in the Adaptive Management Plan for the Restoration Project. Essentially the funding for adaptive actions will be directed at correcting design problems for hydroelectric facilities or solving operating problems associated with the facilities. The remainder of the funding for adaptive management is directed at uncertainty within the flow releases at facilities. Because the Restoration Project including its Adaptive Management Plan is a negotiated action, it leads to a narrowly focused adaptive management effort on facilities.

The Department believes there is a need to expand the adaptive management and monitoring efforts of the Restoration Project to incorporate the greater Battle Creek watershed. A watershed approach is needed to define any problems that may arise and develop solutions. With the completion of the Greater Battle Creek Conservancy Memorandum of Understanding, there is now an opportunity to address the needs of a comprehensive adaptive management plan in a collaborative fashion. There is also a need to refine performance objectives for the recovery of the target species in the Restoration Project. The National Marine Fisheries Service Technical Review Teams have just begun examination of spring-run, winter-run, and steelhead populations. The results of this review should provide more specific guidance on defining population levels in Battle Creek which qualify as genetically viable and self-sustaining. Achieving such viability for the target species is a key goal of the Restoration Project.

Fisheries Analysis

The Department believes the prime decision making criteria for selecting an alternative for habitat restoration is the amount of water flow below dams. The instream flow was determined by the set of scientific analyses applied at dams and spring collection facilities through a collaborative open process in the Biological Technical Team of the Battle Creek Working Group. Among the alternative flow schedules, the proposed action produces the greatest quantity and quality of habitat having the largest release of cold springs for supporting cold water refugia. Aquatic habitat for target species is the prime decision making criteria because the Restoration Project's stated purpose is "restore approximately 42 miles of habitat in Battle Creek and an additional 6 miles of habitat in its tributaries..." (see page 2-1).

The fishery analysis in the EIS/EIR focuses on fish production, which is helpful for informing the public of general consequences relating to fish especially as compared to the no action alternative. However, the fish production index does not directly relate to the project purpose and more importantly lacks the sensitivity to detect biological differences among the action alternatives having very significant differences in habitat. Fishery science presently lacks predictive capability needed to derive reasonably accurate production estimates of anadromous fish under different flow regimes. In contrast, the output of the flow and habitat relationship models shows measurable differences in habitat for critical life stages of fish in response to the two different flow regimes used among the alternatives.

There are two temperature analyses presented in the DEIS/EIR (SNTEMP and the temperature warming analysis included in the fish production index). The Department recommends use of the SNTEMP model as the basis of selecting an alternative because it is most relevant to the Restoration Project since it accounts for cold water spring inputs and the powerhouse tailrace connectors while the warming analysis does not. It is recommended that the DEIS/EIR present a clear summary of temperatures regimes using the SNTEMP model as well as formation of cold water refugia resulting from the release cold water springs to adjacent stream sections.

Mitigation

The document generally discusses feasible mitigation measures for four important construction related impacts but omits them from the sections of the document where they are required to be if they are to be nondiscretionary mitigation actions. For the mitigation to be nondiscretionary under the California Environmental Quality Act (CEQA), they must be specified in the Project Description as an element of

the project or in the Environmental Consequences next to the impacts that they are mitigating. The four specific mitigation measures that need to be moved to the either section include: (1) exclusion of fish spawn from areas disturbed during construction, (2) preventing harmful sediment releases upon dam removal by excavating a channel through sediment behind the dam that is large enough to avoid fluvial erosion upon removal, (3) placement of debris from dam removal will be done in a manner that will not hinder flows or fish passage, and (4) riparian vegetation loss during canal removal is mitigated to a large extent when canal water is placed in the stream to expand the riparian vegetation along the margins of 42 miles of Battle Creek as streamflow increases approximately one order of magnitude during the summer growing season (as discussed with preapplication meeting with U.S. Army Corps of Engineers for 404 permit).

Mount Lassen Trout Farm

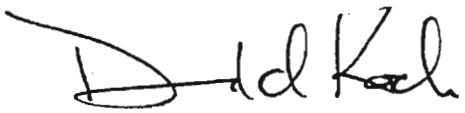
There is no CEQA analysis of the Restoration Project's impacts and mitigation for the Mount Lassen Trout Farm. We recommend removing the discussion of this important local aquaculture issue from the "Other NEPA" section and address it in an appropriate CEQA section, such as agricultural impacts, since farming of fish is considered a form of agriculture. In addition, we recommend including the risk analysis conducted by the Department's Fish Pathology Laboratory Chief in the enclosed February 4, 2003, letter to the Bureau of Reclamation. The Department will be available to assist in identifying appropriate mitigation under CEQA.

Related Projects

The Red Bluff Diversion Dam Fish Passage Improvement Project, located approximately 30 miles downstream of Battle Creek on the Sacramento River, is known to delay passage of anadromous fish for up to 20 days under certain circumstances. A description of the Fish Passage Improvement Project should be included in the Related Projects section of the document because completion of the project will improve the ability of anadromous fish to arrive in Battle Creek in a timely manner.

Thank you for your consideration of our comments. If there are any questions regarding the comments, please contact Mr. Harry Rectenwald at (530) 225-2368.

Sincerely,



DONALD B. KOCH
Regional Manager

Enclosures

cc: Mr. Michael Tucker
National Marine Fisheries Service
Sacramento, CA

Mr. Bart Prose
U.S. Fish and Wildlife Service
Sacramento, CA

Mr. Carl Werder
U.S. Bureau of Reclamation
Sacramento, CA

Ms. Angela Risdon
Pacific Gas and Electric Company
San Francisco, CA

SPECIFIC COMMENTS FOR BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT DEIS/EIR

Chapter 1: At an appropriate point in the chapter include the FERC's determination that fishery restoration plans identifying the need to restore Battle Creek qualify as a Comprehensive Plan for Battle Creek under section 10 (a) (2) (A) of the Federal Power Act (see enclosed October 5, 1998, FERC correspondence to DFG).

Page 2-9, Section titled "Development of a Memorandum of Understanding": At an appropriate location in this section disclose that the selection of any alternative other than the proposed action will require an attempt to develop a new Memorandum of Understanding. In addition, it should be disclosed that the ability to accomplish a new agreement for a restoration effort prior to the expiration of the FERC license in 2026 would be uncertain as will the time it will take.

Page 4.0-5, Bullet 3: See General Comments in the enclosed letter under the Mitigation heading item 3. In addition, the mitigation measure listed here should be revised to specify that the material from dam removal left in the stream will neither impair flows nor fish passage.

Page 4.0-5, Last Paragraph: See General Comments in the enclosed letter under the Mitigation heading item 1.

Page 4.1-1.3, First Sentence: The Coleman National Fish Hatchery does not completely block fish migration six months of the year as it is not an absolute barrier. Fish that enter the hatchery holding ponds when the weir is closed are sorted and select fish are passed upstream. In addition, some passage of the barrier weir occurs when high flows (greater than 300 cfs) diminish its ability to block fish. At flows above 2,500 cfs, the barrier is flooded.

Page 4.1-14, Second Bullet: Eliminate as the ozone plant at the hatchery put an end to this practice of controlling passage for disease control. Reference the Environmental Analysis for the Ozone Plant purpose and need discussion.

Page 4.1, Impact 4.1-3: See General Comments located in the enclosed letter under the Mitigation heading item 1 and comment below for page 4.3-8. The Impact should be changed to less than significant levels with the mitigation of a properly constructed pilot channel. Table 4.3-1 should be referenced to disclose that the largest sediment deposits would have pilot channels. The dimensions of the pilot channels should be disclosed (available in draft specifications).

Page 4.1-32, Impact 4.1-7: See General Comments located in the enclosed letter under the Mitigation heading item 1.

Page 4.1-41, Impact 4.1-17, Sentence 1: Qualify the existing ladders on the dams as inadequate and unreliable for clarity purposes.

Page 4.3-8, Last Paragraph, and Sentence 7: See General Comments located in the enclosed letter under mitigation heading, item 2, and comment above for page 4.1-31. On page 4.3-8 it states: "Reclamation would mitigate for some of these potential impacts (sediment) by constructing pilot channels to facilitate the downstream distribution of sediment now trapped behind dams." The Department recommends that the mitigation referred to here and the more detailed description in General Comments referenced in the enclosed letter be placed under the mitigation for Impact 4.1-3 on page 4.1-31 to reduce this impact to less than significant. Table 4.3-1 should be referenced to disclose that the largest sediment deposits would have pilot channels. The dimensions of the pilot channels should be disclosed (available in draft specifications).

Page 4.14-5, Paragraph2: This description of Department fish planting operations is incomplete. It should clearly state that the Department only plants fish above the barriers to anadromous fish passage identified in the Memorandum of Understanding for the Battle Creek Salmon and Steelhead Restoration Project.

Page 4.17-4, Trout Farming Section: See General Comments located above under heading Mount Lassen Trout Farm.

Chapter 6: Include Red Bluff Diversion Dam Fish Passage Improvement Project. See General Comments in the enclosed letter under Related Projects heading.

Page 6-15, Paragraph 2, Sentence 3: The Department does not plant any fish in the Restoration Project area. This fact needs to be made clear in this discussion.

Page 6-15, Last Paragraph: To accurately describe the Darrah Springs Hatchery program state that the hatchery raises Eagle Lake and Mount Shasta strain rainbow trout (not steelhead, as this is taxonomically incorrect). Darrah Springs Hatchery may raise other strains as well depending on egg availability.

Appendix G, Methodologies: There are two temperature analyses presented in the DEIS/EIR (SNTEMP and the Warming analysis included in the fish production index) but only the SNTEMP is described in the Methodologies section. The stream reach warming model should be included in the Methodologies Appendix G along with an appropriate reference to its calibration and validation. There are some major differences in the predictive capability of the two models that should be compared and described. The model used in the fish production index has some serious limitations for predicting conditions for the proposed action. This is because it does not use the configuration of the Restoration Project including the release of cold water springs to adjacent stream reaches and the use of powerhouse tailrace connectors.

The Department recommends including a summary of the amount of habitat under different temperatures using the SNTEMP model. Such an analysis is available from the appendix of a previous administrative draft dated December 2001 in Appendix E titled: "Instream Flow and Spring Release Effects on Water Temperatures as they Pertain to Steelhead and Chinook Salmon."

Appendix M, Page M-3, Paragraph 1: The discussion states there is no temperature data available for the springs in Battle Creek. The data was collected and used in the SNTEP model. The data showed year round temperature of 52°F at the Eagle Canyon Springs Complex. Copies of the data are available.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D. C. 20426

OCT 5 1998

OFFICE OF HYDROPOWER LICENSING

Mr. Richard L. Elliott
Regional Manager
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Dear Mr. Elliott:

Thank you for providing the Commission with a copy of the Sacramento River System Below Shasta Dam Comprehensive Plans.

Based on Staff review, the following document qualified as a comprehensive plan under section 10(a)(2)(A) of the Federal Power Act(FPA).

The Resources Agency, State of California. January 1989. Upper Sacramento River Fisheries and Riparian Habitat Management Plan. Sacramento, California 158 pp.

California Department of Fish and Game. April 1990. Central Valley Salmon and Steelhead Restoration and Enhancement Plan. Sacramento, California. 115 pp.

California Department of Fish and Game. November 1993. Restoring Central Valley streams: A Plan For Action. Sacramento, California. 129 pp.

California Department of Fish and Game. February 1996. Steelhead Restoration and Management Plan for California. 234 pp.

Any future river-related plans prepared by the California Department of Fish and Game should be filed with the Commission in order to be considered in the Commission's FPA section 10(a)(2)(A) analysis of hydropower projects in California.

Sincerely,

Carol L. Sampson
Director
Office of Hydropower Licensing

cc: Public Files

RECEIVED
OCT - 9 1998
Dept. of F&G Region I

TATE OF CALIFORNIA - THE RESOURCES AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF FISH AND GAME
Fish Health Laboratory
2111 Nimbus Road
Rancho Cordova, CA 95670
Telephone (916) 358-2822

February 4, 2003

Mr. Carl Werder
United States Bureau of Reclamation
2800 Cottage Way
Sacramento, CA

Dear Mr. Werder

This letter summarizes the information I presented at the December 10, 2002 meeting with project management staff of the Battle Creek Restoration Project.

Few well-designed studies exist which address fish pathogen movement in ground water. The results of an excellent study conducted by scientists at Brigham Young University and Utah's Department of Natural Resources Fisheries Experiment Station were presented at the Whirling Disease Symposium, Denver, Colorado, 2000. In that study the movement of dye, bacteria, and triactinospores (TAMS) were observed in ground water at distances up to 0.6 miles in only 7 hours. Bacteria are about 6 times larger than IHN (infectious hematopoetic necrosis) virus, and TAMS are nearly 900 times larger. Viral particles could therefore move easily through these types of soils. This pathogen movement occurred near Midway Hatchery, Utah, which has a shallow water table and volcanic soils.

The similarities between Midway Hatchery and Mount Lassen Trout Farm's (MLTF) Willow Springs and Jeffcoat West sites are remarkable. Each site has a shallow aquifer and volcanic soils. The risks of MLTF fish reared at Jeffcoat West and Willow Springs to fish pathogens, including IHNV, shed from anadromous salmonids traveling upstream of water intakes is significant. Corrective/protective measures should be taken to protect water supplies at those two MLTF facilities from contamination with potentially infective natural waters.

Additional observations of IHNV movement through groundwater have been made by Oregon Department of Fish and Wildlife fish pathologists. Kokanee salmon in Lake Billychinook experience annual IHNV epizootics. Steelhead fingerlings reared at Round Butte Hatchery directly below Lake Billychinook also contract IHNV.

Strain typing of the two isolates identifies them as equal, strongly implicating the kokanee as the source of the virus. The spring water source for Round Butte Hatchery originated after the construction of the dam and filling of the lake, i.e. the spring is lake water traveling through soils. This provides further evidence for the transmission of IHNV through groundwater.

Additionally the possibility of IHNV transfer by animal vectors was discussed. From all available current information the transmission of IHNV by direct hydrologic connection is the only well documented route. While transference by vectors is theoretically possible, no known cases have been reported in the literature, or through personal contacts with fish pathologists from other states.

Sincerely,

Dr. Ed Pert, Chief
Fisheries Programs Branch,

cc: Dr. William T. Cox, FPB
Mr. Donald Koch, Regional Manager, Redding, DFG
Mr. Bob Hulbrock, Aquaculture Coordinator, DFG
Mr. Harry Rectenwald, Senior Fisheries Biologist, DFG
Mr. Mike Berry, Associate Fisheries Biologist, DFG
Mr. Phil Mackie, Mount Lassen Trout Farms

Comment Letter S5—Department of Fish and Game, State of California, Donald B. Koch, Regional Manager, Northern District (October 16, 2003)

Response to Comment S5-1

This comment has been noted. Reclamation and the State Water Board thank DFG for their support of the Five Dam Removal Alternative and their intention to implement the proposed action described in this Final EIS/EIR.

Response to Comment S5-2

New text was added under the section titled Environmental Impact Statement/Environmental Impact Report Process in Chapter 1 in Volume I of this Final EIS/EIR. The added text discloses that DFG's fishery restoration plans, which identify the need to restore Battle Creek, do qualify as a Comprehensive Plan by FERC under Section 10(a)(2)(A) of the Federal Power Act along with the other documents listed in the October 5, 1998, letter.

Response to Comment S5-3

Under the current agreement between PG&E and DFG, which is part of the existing FERC license, PG&E will periodically pass sediment through the sluice gates at several of the diversion dams. Text has been added to the applicable discussions under the section titled Existing Facilities in Chapter 3 in Volume I of this Final EIS/EIR to disclose this agreement.

Response to Comment S5-4

The AMP is directed at correcting design problems for Hydroelectric Project facilities or solving operational problems associated with these facilities, including flow releases. The scope of funding for adaptive actions is in part constrained by the sources that have offered to provide funds. Reclamation will provide $3 million for the Water Acquisition Fund for water acquisition only. The Packard Foundation has offered to provide $3 million for the Adaptive Management Fund for facility modifications or water acquisition. PG&E has offered to provide up to $6 million for facility modifications or water acquisition. The Resource Agencies and PG&E have offered to fund their own participation with the AMPT and AMTT, and each participant has offered to provide funding

for various aspects of monitoring. The CBDA and other funding sources will be asked to provide approximately $17.4 million for monitoring and learning opportunities. Each of these funding sources and potential funders has criteria for encumbering their funds, which remain outside the control of the Restoration Project planners.

The scope of the AMP was intended to be diverse and to address virtually all impacts that the Restoration Project could have on anadromous salmonids. Funding for the AMP is directed predominantly to water acquisition. Of the $12 million committed to adaptive management actions, up to 100% could be spent on water acquisition while no more than $9 million could be spent on facility modifications. Water acquisition can be used to address a number of potentially limiting factors, including fish passage, water temperature, and instream habitat needs.

Response to Comment S5-5

The Restoration Project is restricted to implementing modifications to PG&E's Hydroelectric Project facilities and operations, as explained in the 1999 MOU (see Appendix A in this Final EIS/EIR), and does not take into consideration related actions such as the operations of Coleman National Fish Hatchery. Independent efforts by Reclamation and other resource agencies are underway to ensure that additional adaptive management activities within these related actions (e.g., an adaptive management plan for the Coleman National Fish Hatchery) are integrated into the adaptive management effort for the Hydroelectric Project to the maximum extent possible. The GBCWWG is working to create an adaptive management effort for the greater Battle Creek watershed, but that group is a long way from completing that effort. Because the GBCWWG also supports integrated adaptive management efforts, their plan will likely be as compatible as possible with the Restoration Project AMP.

Two adaptive management plans will be prepared, one for the Restoration Project and one for the Coleman National Fish Hatchery, because each focuses on a different effort in Battle Creek. The immediate focus of the Restoration Project AMP is the Hydroelectric Project, which is owned by PG&E and regulated by FERC (license no. 1121). The adaptive management effort at Coleman National Fish Hatchery, which would be funded by CBDA, must operate under separate laws and regulatory bodies. The Coleman National Fish Hatchery is regulated by USFWS policy and other state and federal laws. Therefore, Reclamation intends to enhance its current AMP for the Restoration Project by developing the Coleman National Fish Hatchery adaptive management plan, which would address Coleman National Fish Hatchery operations and areas of overlap with the Restoration Project (e.g., lower Battle Creek) between the two plans and to establish processes that effectively integrate adaptive management under both plans to the maximum extent feasible under law. The adaptive management plan prepared for the Battle Creek watershed by the GBCWWG will be prepared to integrate with the adaptive management plans prepared for the Restoration Project and the Coleman National Fish Hatchery. For more information on the

relationship between the hatchery and the Restoration Project, see Master Response D.

Response to Comment S5-6

Several components are involved in selecting an alternative for habitat restoration. The purpose of the EIS/EIR is to provide information that the reader can use in comparing alternatives. The assessment provided in Section 4.1, Fish, in Volume I of this Final EIS/EIR under Key Habitat Quantity and Predicted Fish Capacity Indices is based on the flow-habitat relationships developed as part of an instream flow study (See Key Habitat Quantity in the Methods section) and on the minimum instream flow requirements for each alternative. Habitat area used to calculate capacity indices is in Appendix H, "Habitat Assessment Model for Chinook Salmon and Steelhead," in Volume II of this Final EIS/EIR. The benefit of allowing cold spring water to flow to Battle Creek is presented under the section on Water Temperature for each alternative.

Response to Comment S5-7

The fish production relates directly to the project purpose "…to restore approximately 42 miles of habitat in Battle Creek and an additional 6 miles of habitat in its tributaries…." The purpose goes on to indicate that habitat restoration would facilitate the growth and recovery of naturally produced salmonids. As indicated in the response to Comment S6-6, the assessment provided in Section 4.1, Fish, in Volume I of this Final EIS/EIR under the section titled Key Habitat Quantity and Predicted Fish Capacity Indices is based on the flow-habitat relationships developed as part of an instream flow study (See Key Habitat Quantity in the methods section) and on the minimum instream flow requirements for each alternative. Habitat area used to calculate capacity indices is found in Appendix H, "Habitat Assessment Model for Chinook Salmon and Steelhead," in Volume II of this Final EIS/EIR.

Response to Comment S5-8

Please refer to Appendix K, "Water Temperature and Aquatic Habitat in Battle Creek," in Volume II of this Final EIS/EIR for more information on the temperature analysis. Appendix K presents the assessment of water temperature effects on Chinook salmon and steelhead based on water temperature simulation with the SNTEMP model. The data in Appendix K, along with the simulated water temperature presented in the EIS/EIR, show the potential water temperature effects on Chinook salmon and steelhead. The application of the two sets of simulated water temperature had similar results that support the same conclusion of benefits. Relative to the benefits of springs and coldwater refugia, the best available information was included in the discussion in the EIS/EIR. A

clear summary of the temperature regimes has been included in Appendix R, "Water Temperatures in the Battle Creek Restoration Area," in Volume II of this Final EIS/EIR.

Response to Comment S5-9

The commentor states that three important mitigation measures for construction-related impacts are not included in appropriate places in the EIS/EIR. The comment continues to state that mitigation measures need to follow directly the impacts they are mitigating or be included in the project description. The mitigation measures are: (1) excluding fish spawning from areas disturbed during construction, (2) preventing harmful sediment releases upon dam removal by excavating a channel through sediment behind the dam that is large enough to avoid fluvial erosion upon removal, and (3) placing debris from dam removal in a manner that will not hinder flows or fish passage. The commenter also notes (4) the absence of discussion of the Restoration Project's beneficial effect of restoring/expanding riparian vegetation lost during canal removal along the margins of 42 miles of Battle Creek as streamflow increases approximately one order of magnitude during the summer growing season.

Additional information pertaining to the mitigation measures and the beneficial effect has been included in Chapter 3, Project Alternatives, in Volume I of this Final EIS/EIR. In the event that an alternative other than the Proposed Action is chosen for the Restoration Project, all mitigation measures that apply to the environmental impacts of that alternative would also be implemented. The specific location for discussion of each item follows:

- Item 1: The exclusion of fish spawning from areas disturbed during construction has been incorporated into Chapter 3. Specifically, this information is included in the project description for the Five Dam Removal Alternative as an environmental commitment. Please refer to the section titled Anadromous Fish Spawning Exclusion.
- Item 2: Preventing harmful sediment releases during dam removal by excavating a channel behind the dams is described in greater detail in Chapter 3. This information is included as part of the project description for the Five Dam Removal Alternative in several locations. Specifically refer to the discussion of Sediment Management and Construction Considerations under the South Diversion Dam and the Coleman Diversion Dam/South Powerhouse project descriptions.
- Item 3: The placement of debris is described in greater detail in Chapter 3 as part of the project description for the Five Dam Removal and Six Dam Removal Alternatives. Debris placement is discussed under the Wildcat Diversion Dam Removal, South Diversion Dam Removal, and Coleman Diversion Dam and Appurtenant Facility Removal for the Five Dam Removal Alternative. Under the Six Dam Removal Alternative, debris placement is also discussed under the Eagle Canyon Diversion Dam Removal.

- Item 4: The impact addressing the potential loss of woody riparian vegetation from closure of South and Wildcat Canals (Impact 4.2-11 in the Draft EIS/EIR) has been updated and renumbered as Impact 4.2-12, "Possible loss of woody riparian vegetation along PG&E canals." This impact has also been expanded to include the beneficial effect of the Restoration Project on riparian habitat in Section 4.2 in Volume I of the Final EIS/EIR.

Response to Comment S5-10

The commentor suggests removing the discussion of the Restoration Project's impacts and mitigation for MLTF from Section 4.16, and addressing it as part of the agricultural impacts.

Increasing the number of anadromous fish in Battle Creek, which could potentially carry serious and catastrophic fish diseases, could increase the risk of infecting farmed trout at the MLTF facilities that are hydrologically connected to Battle Creek. Because MLTF markets "disease-free fish," an infection in their aquaculture facilities could have an adverse effect on their business. Although DFG considers aquaculture an agricultural use, the project itself would not convert agricultural land to another use. Therefore, direct effects to MLTF are addressed under Effect 4.16-5 in Section 4.16 as a socioeconomic effect (in lieu of agricultural) because these effects are associated with how MLTF conducts their aquaculture business. Master Response E provides additional information relating to how this impact has been analyzed and addressed.

Response to Comment S5-11

A discussion of the Red Bluff Diversion Dam Fish Passage Improvement Project was added to under the Red Bluff Diversion Dam Fish Passage Improvement Project discussion of Chapter 6, "Related Projects," in Volume I of this Final EIS/EIR.

Response to Comment S5-12

Please see the response to Comment S6-2.

Response to Comment S5-13

Text has been added under Development of a Memorandum of Understanding in Chapter 2, "Purpose and Need, Project Development, and Project Background," in Volume I of this Final EIS/EIR. The added text discloses that the selection of

any alternative other than the proposed action will require the development of a new memorandum of understanding. Additionally, the ability to negotiate a new agreement prior to the expiration of the FERC license in 2026 would be uncertain, as would the amount of time it might require.

Response to Comment S5-14

Please see the response to Comment S6-9. In addition, the text has been clarified to explain that any materials left in the stream, following dam removal activities, will not impair flows or fish passage. The new text is found under Debris Removal in the Environmental Commitments discussion in Chapter 3, "Project Alternatives," in Volume I of this Final EIS/EIR.

Response to Comment S5-15

Please see the response to Comment S6-9.

Response to Comment S5-16

Clarification on Coleman National Fish Hatchery operation and anadromous fish migration upstream of the barrier weir has been incorporated under Factors Affecting Abundance—Migration Habitat in Section 4.1, Fish, in Volume I of this Final EIS/EIR.

Response to Comment S5-17

The second bullet under Migration Habitat in Section 4.1, Fish, in Volume I of this Final EIS/EIR pertaining to the ozone treatment plant at the Coleman National Fish Hatchery has been eliminated, and the following text has been added:

> Prevention of the transfer of disease through the Coleman National Fish Hatchery water supply from Chinook salmon and steelhead naturally spawning in Battle Creek is no longer accomplished by blocking the passage of fish at the barrier (U.S. Fish and Wildlife Service 2001b). A water treatment facility, including ozonation, alleviates the risk of recurrent disease problems that may be transmitted through the water supply. However, it does not prevent disease, which may be transmitted from fish that have passed the weir.

Response to Comment S5-18

The project proponent does not agree that Impact 4.1-3 (i.e., mortality of fish eggs and larvae resulting from the removal of three dams and subsequent sediment releases) in Section 4.1, Fish, in Volume I of this Final EIS/EIR is less than significant. Although the effect of sediment is likely to be less than significant, the timing, duration, and magnitude of actual effects cannot be predicted with certainty. The mitigation measure was retained. The following text was added to the impact section:

> Adverse effects of sediment movement will be avoided or minimized to some extent at Coleman and South Diversion Dams with excavation of pilot channels in the sediment behind the dams. The pilot channel at Coleman Diversion Dam would extend from the dam upstream about 500 feet (Bureau of Reclamation 2000). The pilot channel will have a bottom width of about 30 feet and depth of about 10 feet at the downstream end. The pilot channel at South Diversion Dam would be about 900 feet long, about 20 feet wide, and 12 feet deep at the downstream end. The side slopes of the pilot channels will be 2:1. The excavated pilot channels would minimize initial sediment movement but would not be stable channels (i.e., sediments would be dislodged at higher flows). In addition, a component of the AMP includes monitoring fine sediment changes potentially associated with dam removal.

Response to Comment S5-19

Please see the response to Comment S6-9.

Response to Comment S5-20

The text for Impact 4.1-18 in Section 4.1, Fish, in Volume I of this Final EIS/EIR was modified to reflect that existing ladders are inadequate and unreliable.

Response to Comment S5-21

Reclamation has incorporated a description of the pilot channels under Impact 4.1-3. However, the project proponent does not agree that the sediment impacts discussed in the summary discussion under Environmental Consequences of Section 4.3, Hydrology, in Volume I of this Final EIS/EIR will be less than significant after construction of the pilot channels. Please see the response to Comment S6-18.

Response to Comment S5-22

New text has been added under Fishing in the Recreational Activities discussion in Section 4.14, Recreation, in Volume I of this Final EIS/EIR, to clarify the location where the DFG stocks fish in the Battle Creek System.

Response to Comment S5-23

Please see the response to Comment S6-10.

Response to Comment S5-24

Please see the response to Comment S6-11.

Response to Comment S5-25

New text has been added under Other Trout-Rearing Facilities in the Projects That Could Directly Affect or Be Affected by the Restoration Project discussion in Chapter 6, "Related Projects," in Volume I of this Final EIS/EIR. The new text clarifies that DFG does not stock any fish within the Restoration Project area.

Response to Comment S5-26

The text under the discussion on Darrah Spring Hatchery in Chapter 6, "Related Projects," in Volume I of this Final EIS/EIR, was modified to reflect the taxonomic distinction between species raised as part of the Darrah Springs Hatchery program (i.e., rainbow trout) and steelhead.

Response to Comment S5-27

The project proponent disagrees with the comment that there are major differences in the predictive capability of the two water temperature models relative to effects of simulated water temperature on fish. Appendix K, "Water Temperature and Aquatic Habitat in Battle Creek," in Volume II of this Final EIS/EIR provides additional information on the SNTEMP temperature analysis. Appendix K presents the assessment of water temperature effects on Chinook salmon and steelhead based on water temperature simulation with the SNTEMP model. Appendix R, "Water Temperatures in the Battle Creek Restoration Area," in Volume II of this Final EIS/EIR shows warming estimates based on historical water temperature data. The application of the two sets of simulated

water temperatures gave similar results that support the same conclusion of relative benefits.

Response to Comment S5-28

Appendix K, "Water Temperature and Aquatic Habitat in Battle Creek," in Volume II of this Final EIS/EIR presents the assessment of water temperature effects on Chinook salmon and steelhead based on water temperature simulation with the SNTEMP model. The assessment includes a summary of the amount of habitat that provides suitable water temperature. Impact 4.1-13 in Section 4.1, Fish, in Volume I of this Final EIR/EIS provides a brief summary of the information presented in Appendix K.

Response to Comment S5-29

The sentence in question under Measured Water Temperatures on page M-3 of Appendix M, "Water Temperature in the Battle Creek Restoration Area," in the Draft EIS/EIR (now Appendix R in Volume II of this Final EIS/EIR) states, "No measurements have been collected in the springs and tributaries that feed Battle Creek." The sentence has been modified to read:

> Water temperature measurements have been collected at selected springs (e.g., year-round temperature at the Eagle Canyon spring complex of 52°F) and were used to the extent possible in the SNTEMP simulation. Additional water temperature monitoring will be required to determine the temperature effects from other springs (e.g., spring water entering South Fork Battle Creek from Soap and Ripley Creeks).

DEPARTMENT OF TRANSPORTATION
P.O. BOX 496073
REDDING, CA 96049-6073
PHONE (530) 225-3369
FAX (530) 225-3020

Flex your power!
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IGR/CEQA Review
Sha-5-0.741
Battle Creek Restoration Project
Draft Supplemental EIS/ Revised EIR
SCH# 2000042043

March 21, 2005

Mr. Jim Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Canaday:

Caltrans District 2 has reviewed the Draft Supplemental EIS and Revised Environmental Impact Report submitted on behalf of the Water Resources Control Board, for modification of the hydroelectric project to restore 42 miles of salmon and steelhead trout habitat within and adjacent to the reaches of Battle Creek and its tributaries.

Based on the project information submitted, approval of this project will not adversely impact facilities under our jurisdiction; therefore, we have no comment.

Thank you for providing us the opportunity to review this project. If you have any questions, or if the scope of this project changes, please call me at 225-3369.

Sincerely,

MARCELINO GONZALEZ
Local Development Review
District 2

Comment Letter S6—California Department of Transportation, Marcelino Gonzalez, Local Development Review (March 21, 2005)

Response to Comment S6-1

This comment has been noted.

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

April 18, 2005

Jim Canaday
State Water Resources Control Board, Division of Water Rights
1001 I Street
Sacramento, CA 95814

Subject: Water Quality Certification for the Battle Creek Salmon and Steelhead Restoration Project
SCH#: 2000042043

Dear Jim Canaday:

The State Clearinghouse submitted the above named Supplemental EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on April 15, 2005, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Comment Letter S7—State Clearing House and Planning Unit, Terry Roberts, Director (April 18, 2005)

Response to Comment S7-1

This comment has been noted.

From: Harry Rectenwald [HRectenw@dfg.ca.gov]
Sent: Thursday, April 28, 2005 12:13 PM
To: Colleen Lingappaiah
Cc: Bob Williams; Mike Berry; Steve Turek
Subject: Comments on the Battle Ck Restoration Project SEIS/REIR

Colleen-

Our internal review of the Battle Ck Restoration Project SEIS/REIR resulted in the following two comments:

1. Table ES-5, page 2 of 10, Second paragraph, Six Dam Removal alternative, Recommended Mitigation Measures. The text recommends the same mitigation for impact 4.1-8 for the Jeffcoat facilities. Due to the removal of Eagle Canyon Dam in the six dam alternative, the Jeffcoat facility will not require the same mitigation as it does for the Five Dam alternative.

2. The preferred mitigation option for the Asbury Dam modification is a combination of Option A-2 and A-3. The water fall modification option is not preferred. These conclusions were reached jointly among PG&E, DFG and USBR in a meeting in late April.

At this time further discussions are underway on the options for the Willow Springs facility.

If there are any questions please give me a call. Thank you.

Harry

Comment Letter S8—California Department of Fish and Game, Harry Rectenwald, Environmental Scientist (April 28, 2005)

Response to Comment S8-1

The mitigation measure for Impact 4.1-45, Increased risk of a serious or catastrophic fish disease spreading from Battle Creek to fish communities throughout the state through stocking with MLTF and Darrah Springs State Fish Hatchery fish, as described in Table ES-5 of the Executive Summary in Volume I of this Final EIS/EIR has been updated. Because Eagle Canyon Diversion Dam would be removed under the Six Dam Removal Alternative, there would be no need to implement mitigation at the Jeffcoat site under this alternative.

Response to Comment S8-2

The preferred mitigation measure for addressing fish impacts associated with the Darrah Springs State Fish Hatchery is a combination of Options A-2 and A-3 as described in the Draft Supplemental EIS/Revised EIR. The revised description for this mitigation measure is presented as part of the mitigation to address Impact 4.1-8 in Section 4.1, Volume I of this Final EIS/EIR.

Chapter 6
Local Agency Comments

This section contains copies of comment letters received from local agencies. Each letter is followed by responses to the comments presented in each letter. Responses to comments are individually numbered in sequence, corresponding to the numbering assigned to comments in each comment letter. The responses are prepared in answer to the full text of the original comment.

Table 6-1. Local Comment Letters Received on the Draft EIS/EIR and the Draft Supplemental EIS/Revised EIR

Comment Letter No.	Date	Agency/Organization	Name
Draft EIS/EIR (July 2003)			
L1	08/20/03	California Farm Bureau Federation	Pam Giacomini, Director, Natural Resources and Commodities
L2	10/07/03	County of Tehama, Board of Supervisors	Bill Borror, Chairman
L3	10/14/03	California Farm Bureau Federation	Pam Giacomini, Director, Natural Resources and Commodities
L4	10/14/03	Tehama County Farm Bureau	Robert A. Williams, President
Draft Supplemental EIS/Revised EIR (February 2005)			
None			

CALIFORNIA FARM BUREAU FEDERATION

GOVERNMENTAL AFFAIRS DIVISION
1127-11TH STREET, SUITE 626, SACRAMENTO, CA 95814 · PHONE (916) 446-4647

August 20, 2003

Ms. Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Mr. Jim Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Marshall and Mr. Canaday:

We have done a quick review of the July 2003 Draft EIS/EIR for the Battle Creek Salmon and Steelhead Restoration Project. We believe the document has numerous inadequacies that leave many questions as to the completeness of the EIS/EIR in addressing key issues of fish pathogen transfer into hatchery and wild trout stocks.

In addition, we believe there is a failure to identify and commit to solutions for negating the risk of pathogen transfer. We also believe that after further review, we will find other impacts to the rural communities surrounding the Battle Creek Watershed that have not been adequately addressed.

For these key reasons, we respectively request a 90 day extension of the public comment period. The current date for written comments is September 16, 2003. An additional 90 days will allow us and other affected stakeholders adequate time for review and comment.

Thank you for your consideration. Please notify us as soon as possible with your decision.

Sincerely,

Pam Giacomini

Pam Giacomini
Director, Natural Resources and Commodities

Cc: Mr. Don Koch, Department of Fish and Game
Tehama County Farm Bureau
Shasta County Farm Bureau
Mt. Lassen Trout Farm

Comment Letter L1—California Farm Bureau Federation, Pam Giacomini, Director, Natural Resources and Commodities, (August 20, 2003)

Response to Comment L1-1

Reclamation and the State Water Board are aware of the concern that trout produced by MLTF's Jeffcoat and Willow Springs aquaculture facilities could become infected with serious or catastrophic fish diseases, such as the IHN virus, once the Restoration Project is implemented and anadromous fish populations are restored in Battle Creek. Infected MLTF trout could then be distributed to other water bodies in California and spread these diseases to fish populations that currently are not infected.

This Final EIS/EIR has been revised to show a significant impact related to the increased risk of a serious or catastrophic fish disease spreading from Battle Creek fish populations to fish populations throughout California as a result of stocking other waters with MLTF fish. Impact 4.1-8 in Section 4.1, Fish, in Volume I of this Final EIS/EIR presents an analysis and appropriate mitigation measures to address this significant impact. Water quality impacts and socioeconomic effects related to Impact 4.1-8 are also addressed in Sections 4.4, Water Quality, and 4.16, Other NEPA Analyses, respectively. Master Response E provides additional information relating to how this impact has been analyzed and addressed.

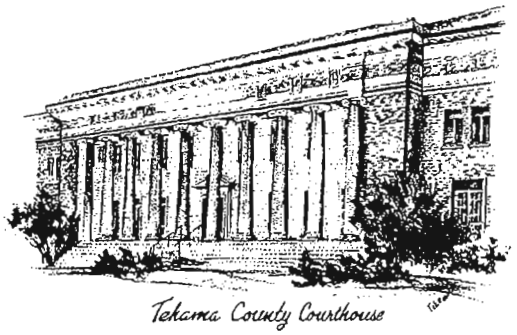
Response to Comment L1-2

This comment does not clearly identify what impacts are being referred to that could occur to rural communities surrounding the Battle Creek Watershed; however, Reclamation and the State Water Board assume that these impacts are in relation to the increased risk of serious and catastrophic fish diseases in Battle Creek fish populations. Impact 4.1-8 and Impact 4.4-4 in Volume I of this Final EIS/EIR address significant impacts associated with infecting other fish populations and other waters, respectively, in California that could be affected by the increased risk of transferring anadromous fish diseases from Battle Creek fish populations to MLTF farmed trout. Impact 4.1-8 in Section 4.1, Fish, and Impacts 4.4-3 and 4.4-4 in Section 4.4, Water Quality, in Volume I of this Final EIS/EIR present an analysis and appropriate mitigation measures to address these significant impacts. Master Response E provides additional information relating to how this impact has been analyzed and addressed.

Response to Comment L1-3

Reclamation and the State Water Board acknowledged the request to extend the public comment period for the Draft EIS/EIR but could not provide the full extension requested. In response to this request, Reclamation and the State Water Board extended the comment period by 30 days from the original end date (September 16, 2003). The public comment period ended on October 16, 2003.

Board of Supervisors
COUNTY OF TEHAMA



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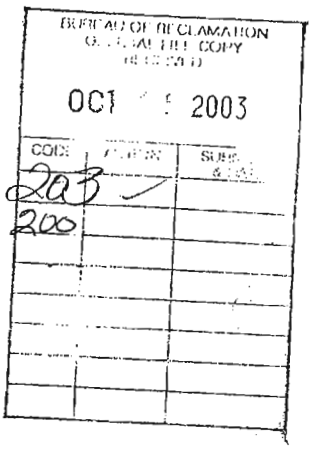

October 7, 2003

Ms. Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Mr. Jim Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Re: Battle Creek Salmon and Steelhead Restoration Project DEIR

Dear Ms. Marshall and Mr. Canaday:

The Tehama County Board of Supervisors took action on October 7, 2003 to submit the following comments on the Draft EIS/EIR for the Battle Creek Salmon and Steelhead Restoration Project.

1. We are concerned that the environmental effects of straying during major hydropower maintenance events are not adequately defined as noted in the Technical Review Panel Report. Habitat protection may not be effectively specified which prevents analysis of potential environmental impacts.

2. Changes in the designs from conceptual to final made analysis difficult when considering the operational aspects of the Adaptive Management Plan. We are unable to translate the Third Objective into meaningful actions that could be evaluated for environmental impacts due to vague descriptions of specific actions to be undertaken.

3. Many of the project's actions are directed towards the winter run Chinook salmon are occurring in an area not on the federally listed critical habitat for this species.

4. False environmental imprinting could occur if North Fork water is shifted to South Fork lower down. This false attraction could have significant effects if the water temperatures and flows were low as in a drought condition or in PG&E maintenance operations.

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5. Project implementation will increase the percentage of Coleman Powerhouse Tailrace from North Fork. Recognizing the existing problems with false attractions some action to prevent increasing this misdirecting of returning salmonids is needed to stabilize the migration patterns and prevent false signals even if outside of project.

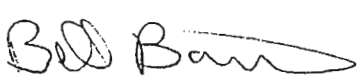
6. Dam removal may result in downstream movement of the deposits currently held in place upstream of these structures. Monitoring should be undertaken to quantify and protect downstream segments from adverse impacts to the habitat or fish populations. Placement of dam debris on the banks at levels insuring downstream movement only during high flow events should be considered to prevent habitat damage.

7. This project has increased in cost from $28 million to $62 million. Several areas of potential environmental impact have not been evaluated or mitigated. Examples include wildfire prevention, construction traffic safety and effective monitoring to evaluate the success of these project proposals.

8. Assurances from the Bureau need to be provided insuring that this project will not adversely affect the Mt Lassen Trout Farms located at the Jeffcoat East and West or the Willow Springs Hatcheries would prevent environmental impact transference outside of the Project area.

Thank you for allowing the Board of Supervisors to comment on the Draft EIR/EIS.

Sincerely,



Bill Borror, Chairman
Tehama County Board of Supervisors

Comment Letter L2—Board of Supervisors, County of Tehama, Bill Borrow, Chairman, (October 7, 2003)

Response to Comment L2-1

Until specific limiting factors are identified, such as water flow and temperature, it is not possible to identify specific responses that would occur. The responses are described for each of the population objectives in Section III.A.2 of the Battle Creek AMP (Terraqua, Inc. 2004). These responses generally state that once diagnostic studies indicate the most probable limiting factor, actions will be taken to improve conditions relating to the particular limiting factor (providing it is a controllable factor [i.e., something other than weather and runoff]).

Response to Comment L2-2

The third objective in the Battle Creek AMP is associated with the restoration and recovery of anadromous salmonids (i.e., fall-run Chinook salmon, late fall–run Chinook salmon) that enter the stream as adults in the wet season and spawn upon arrival. Substantially more information clarifying the goals and objectives pertaining to the recovery of these species has been added to the AMP since submittal of the Draft EIS/EIR. Refer to quantitative fish population goals in Section III.A.2.e., Viable Population Sizes and Interim Quantitative Population Goal, of the AMP (see Appendix C in Volume II of this Final EIS/EIR) for clarification regarding the actions to be undertaken as part of Population Objective 3. Several conceptual models have been added to the AMP that also help explain the specific actions to be undertaken.

Response to Comment L2-3

The winter-run Chinook salmon population presently exists in the Restoration Project area at remnant levels; fewer than 10 naturally spawned adult winter-run Chinook salmon have been documented during the past 3 years, although other naturally spawned fish could have entered the Restoration Project area and not been documented. These remnant populations were supplemented by the release of 29 hatchery-origin winter-run Chinook salmon in 1998. Still, current populations of winter-run Chinook salmon appear to be severely depressed compared to limited historical evidence.

Winter-run Chinook salmon in Battle Creek are listed as endangered under both the federal and California Endangered Species Acts. The Sacramento River winter-run Chinook salmon was state-listed as endangered on September 22,

1989 (California Natural Diversity Database 2001) and federally listed as endangered on January 4, 1994 (59 Federal Register 440). Designated critical habitat includes the Sacramento River from Keswick Dam downstream to the Sacramento–San Joaquin Estuary (58 FR 33212; June 16, 1993). Battle Creek is not included as critical habitat for winter-run Chinook salmon; however, Battle Creek is the only stream in the Central Valley in which the recovery plan recommended that an effort be made to establish a self-sustaining population of this evolutionarily significant unit (ESU) (NOAA Fisheries 1997b).

Response to Comment L2-4

The evaluation of the potential for false attraction in Section 4.1, Fish, in Volume I of this Final EIS/EIR is qualitative. The Final EIS/EIR assumes that the proportion of flow in South Fork Battle Creek that comprises flow discharged from North Fork Battle Creek indicates the potential for false attraction. In other words, false attraction is assumed to increase at higher proportions of North Fork Battle Creek flow.

It is not possible to determine whether Chinook salmon observed in the South Fork were natal to the South Fork or were falsely attracted to the South Fork during power system outages, when large amounts of predominantly North Fork power water were discharged to the lower South Fork for substantial periods of time while North Fork flow was low. However, the mixing of North Fork Battle Creek flow with South Fork Battle Creek flow potentially results in false attraction of adult Chinook salmon and steelhead from their natal reaches in North Fork Battle Creek. Water temperature in North Fork Battle Creek is cooler than water temperature in South Fork Battle Creek. Water temperatures required for spawning and rearing of steelhead and Chinook salmon are more likely to be adverse in South Fork Battle Creek, especially from April through October. Reproductive failure of adults that stray to South Fork Battle Creek may reduce the overall year class production for Battle Creek as a whole, depending on the level of habitat saturation in North Fork Battle Creek.

Under the Five Dam Removal Alternative (Proposed Action), North Fork Battle Creek flow will no longer be discharged to South Fork Battle Creek, except under extreme flood conditions. This separation of North Fork and South Fork flows will result in reduced fish straying caused by abnormal olfactory cues and cooler temperatures of mixed water, facilitating the return of adult Chinook salmon and steelhead to natal spawning habitat in North Fork Battle Creek and increasing spawning success and fry production. During extreme flood conditions, North Fork Battle Creek flow may spill into South Fork Battle Creek under the Proposed Action. The canal system may not be sufficient to contain the excess flow during extreme flood conditions, resulting in a small quantity of flow mixing for a short period of time. This temporary condition would result in a minimal amount of mixed flow.

The issue of false attraction has been analyzed in Methods—Migration as well as under each alternative in Section 4.1, Fish, in Volume I of this Final EIS/EIR (Impacts 4.1-16, 4.1-53, and 4.1-73) and is determined to be a beneficial effect.

Response to Comment L2-5

Under the Proposed Action, North Fork Battle Creek flow will no longer be discharged to South Fork Battle Creek, except under extreme flood conditions. This separation of North Fork and South Fork flows will result in reduced fish straying caused by abnormal olfactory cues and cooler temperatures of mixed water, facilitating the return of adult Chinook salmon and steelhead to natal spawning habitat in North Fork Battle Creek and increasing spawning success and fry production. Refer to Response to Comment L2-4 for additional information related to potential false attraction issues under the Proposed Action.

Response to Comment L2-6

As described under Impact 4.4-5 in Section 4.4, Water Quality, in Volume I of this Final EIS/EIR, the sediments behind Wildcat, Lower Ripley Creek Feeder, and Soap Creek Feeder Diversion Dams are not considered large enough to result in a sediment movement impact. Impacts of sediment movement from South and Coleman Diversion Dams and the proposed mitigation measures to minimize these impacts are described in Impact sections 4.4-5, 4.4-6, and 4.4-7 in Section 4.4 in Volume I of this Final EIS/EIR.

One proposed mitigation measure to minimize sediment movement is to construct a pilot channel that would facilitate the distribution of sediments by natural high-flow events and ensure that the mass of sediment would not impede fish passage, should low flows predominate after dam removal. Potential impacts on fish habitat or water quality resulting from sediment movement, following the removal of dams, are expected to be less than significant after implementation of the proposed mitigation measures.

A sediment-monitoring plan, described in the Battle Creek AMP (Terraqua Inc. 2004), will be implemented prior to project construction. The monitoring plan will document sediment movement following dam removal, assess the need for adaptive management responses to changing physical conditions, and provide information to evaluate the performance of dam removals relative to habitat improvements in the Battle Creek basin. Thus, the sediment monitoring plan and the AMP will be used to determine any potential adverse impacts on habitats and to make modifications to maintain and protect fish habitat.

Response to Comment L2-7

The comment states that several areas of environmental impacts have not been evaluated or mitigated, including wildfire prevention, construction traffic safety, and effective monitoring to evaluate the success of project proposals. Fire safety is discussed under Impact 4.12-5 in Section 4.12, Public Health and Safety, in Volume I of this Final EIS/EIR. The *Reclamation Safety and Health Standards*, which are a part of all of Reclamation's standard contracts, require that a fire prevention plan be prepared for each job site. Adherence to these project requirements will reduce the risk of fire to a less-than-significant level.

Impacts resulting from increased construction traffic are discussed under Impact 4.9-1 in the Environmental Consequences discussion of Section 4.9, Transportation, in Volume I of this Final EIS/EIR. Based on this analysis, the impact on traffic volumes on state, county, and private roads is considered to be less than significant with adherence to the standards mentioned above. In addition to the improvements specified under Impact 4.9-2 in Section 4.9, the standards would also require the contractor to submit a comprehensive written safety program to Reclamation, including procedures for flagging and posting signage to facilitate the safe passage of traffic.

The AMP discussed under the Five Dam Removal Alternative discussion of Chapter 3, Project Alternatives, in Volume I of this Final EIS/EIR provides for monitoring of the project and allows for adaptive management that (1) uses monitoring and research to identify and define problems; (2) examines various alternative strategies and actions for meeting measurable biological goals and objectives; and (3), if necessary, makes timely adjustments to strategies and actions based on best scientific and commercial information available. The AMP will be used to make adaptive monitoring decisions based on the monitoring data collected as specified in the plan.

Response to Comment L2-8

See the response to Comment L1-1.

CALIFORNIA FARM BUREAU FEDERATION

GOVERNMENTAL AFFAIRS DIVISION

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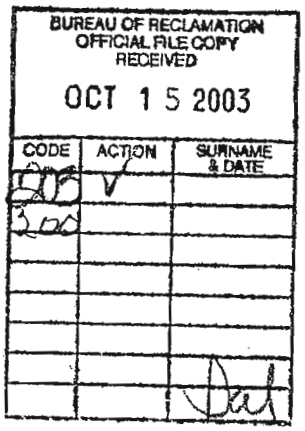

October 14, 2003

Ms. Mary Marshall
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Mr. Jim Canaday
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Re: Battle Creek Draft EIR/EIS

Dear Ms. Marshall and Mr. Canaday:

The California Farm Bureau Federation represents more than 38,000 farm and ranch families who make their living caring for the animals, wildlife and natural resources on their property while producing safe, plentiful and wholesome food and clothing for the people of California.

We have done a thorough review of the July 2003 Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Battle Creek Salmon and Steelhead Restoration Project "Project". Under both the California Environmental Quality Act, Public Resources Code § 21000 et seq. (CEQA), and the National Environmental Policy Act, 42 U.S.C. § 4321 et seq. (NEPA), issues related to significant impact must be fully analyzed and options for mitigation identified. The Draft EIS/EIR fails to do that thereby violating both CEQA and NEPA.

California Farm Bureau Federation believes the July 2003 Draft EIS/EIR document has numerous inadequacies that leave many questions as to the completeness of the EIS/EIR in addressing key issues of fish pathogen transfer into hatchery and wild trout stocks. In addition, we believe there is a failure to identify and commit to solutions for negating the risk of pathogen transfer, which will have adverse effects on private aquaculture industry as well as pose significant risk to the resources of the State of California. We further believe that impacts to the rural communities surrounding the Battle Creek Watershed have not been adequately addressed due to the erroneous approach of the EIS/EIR, which was to focus solely on the construction aspect of the project, rather than the long-term operation of the project. These inadequacies are detailed below.

I. Inadequacy of addressing fish pathogen transfer

In a letter dated February 4, 2003 Dr. Ed Pert, California Department of Fish and Game, sent a letter to Mr. Carl Werder with the United States Bureau of Reclamation. In this letter, Dr. Pert clearly states that the Battle Creek Restoration

Project as designed poses a significant risk to the hatchery operations of Mount Lassen Trout Farm (MLTF). "The risks of MLTF fish reared at Jeffcoat West and Willow Springs to fish pathogens, including IHNV, shed from anadromous salmonids traveling upstream of water intakes is significant." (Please see paragraph three of the attached letter). All alternatives in the "Project" increase the number of anadromous salmonids that migrate into the upper reaches of North Battle Creek. These anadromous salmonids carry a high incidence of IHNV, thus their presence significantly increases the risk of infection in the domestic hatchery stocks at MLTF's Willow Springs, Jeffcoat West, and Jeffcoat East facilities. In a letter dated August 22, 2003 from Ron Hedrick, Professor, University of California, Davis, he clearly states that the risk to MLTF rainbow trout from IHNV is significant. (See attached letter).

Even though all of this information has been presented in meetings, letters and workshops leading up to publication of the Draft EIS/EIR, it has virtually been ignored in the identification of the significant impact the "Project" poses to pathogen transfer from anadromous salmonids to hatchery and wild trout.

Under CEQA, the EIS/EIR has an obligation to consider impacts to all species, both raised and wild stocks. The EIS/EIR as currently written fails to do that.

II. Failure of the EIS/EIR to identify significant impacts to the environmental resources of the State of California

Aquaculture is a form of agriculture and impacts to agriculture must be addressed under CEQA. The Fish and Game Code (§ 17), the Food and Agriculture Code, (§ 23.5) and the Public Resources Code, (§§ 825-828 and 30100.2) all refer to the importance of aquaculture and to aquaculture as being a part of agriculture. The EIS/EIR fails to find that the "Project" will have a significant impact on the MLTF operation, thereby having a significant impact on agriculture, even though the letter from Dr. Ed Pert dated February 4, 2003 clearly states that the fish pathogen IHNV would lead to contamination of Willow Springs, Jeffcoat East and Jeffcoat West facilities. Once those stocks are contaminated, they would be eliminated and not be allowed to be sold to existing contracts that MLTF has around the state. MLTF is a 54 year old business that brings over $ 2.7 million in gross sales back into the rural economies of Shasta and Tehama counties. Taking that influx of primary dollars out of the local economy will be devastating to the agriculture industry in these rural counties.

The EIS/EIR wrongly focuses it's attention on only the construction component of the project rather than the operational component of the project. By making that initial grave error, the EIS/EIR ignores the impact to the state's trout fishery, as well as the impact to pollution of waters of the state from IHNV. MLTF uses spring water to fill its trout ponds. Spring water is essentially ground water that

has risen to the surface. That water will become polluted by increased IHNV pathogens thereby placing at risk the beneficial use of that water. (See the February 4, 2003 letter from Dr. Ed Pert).

The EIS/EIR as written ignores the significant impacts to the states environmental resources of agricultural land, fish and water.

III. Failure of the EIS/EIR to identify feasible mitigation measures for impacts to hatchery and wild trout stocks and to the environmental resources of the State of California

Under CEQA, a public agency may not approve a project as proposed unless feasible and enforceable mitigation measures are identified that will reduce the impacts to less than significant levels (PRC § 21092.1). The EIS/EIR fails to propose mitigation measures that will lessen the impacts to MLTF and to the environmental resources of the state.

Options for mitigation that are workable have been identified and discussed in meetings, letters, and workshops. They fail to be present in the Draft EIS/EIR an issue that must be addressed and resolved in the Final EIS/EIR.

In summary, we believe that the Draft EIS/EIR fails to address significant impacts and mitigation necessary. We urge you to address the above listed concerns. If you have questions or want to discuss any of the above raised issues, please don't hesitate to call.

Sincerely,

Pam Giacomini

Pam Giacomini
Director, Natural Resources and Commodities

Cc: Mr. Don Koch, Department of Fish and Game
Tehama County Farm Bureau
Shasta County Farm Bureau
Mt. Lassen Trout Farm

UNIVERSITY OF CALIFORNIA, DAVIS

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SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF MEDICINE AND EPIDEMIOLOGY
(530) 752-1363
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ONE SHIELDS AVENUE
DAVIS, CALIFORNIA 95616-8737

Mr. Phil Mackey
President
Mount Lassen Trout Inc.
28125 Hiway 36 E.
Red Bluff, CA 96080

August 22, 2003

Dear Mr. Mackey,

I am sending you this short note in response to your phone inquiry regarding experiments conducted in my research laboratory with your rainbow trout and infectious hematopoietic necrosis virus (IHNV). You may remember we requested eggs from you in 1990 to conduct experiments examining the virulence (the degree of ability to cause disease) of several strains of IHNV from chinook salmon populations in California. In those laboratory trials we exposed groups of chinook salmon, kokanee salmon and rainbow trout (Mt. Lassen strain) to graded doses of three different IHNV strains obtained from chinook salmon of three origins (Trinity River hatchery, Sacramento River/Coleman hatchery, and American River/Nimbus hatchery). In general, the viruses were most virulent for kokanee salmon but disease and mortality were evident in all three fish species tested including significant disease and mortality among the rainbow trout (up to 80% cumulative mortality with the Nimbus isolate and 65% with the Coleman isolate of IHNV).

Thus, in response to your question are Mt. Lassen rainbow trout susceptible to strains of IHNV that would be found in the upper Sacramento River, the answer is clearly yes, based on the experimental trials conducted in our laboratory in 1990. In more recent studies we have also demonstrated that another strain of rainbow trout (Trout Lodge) is also susceptible to isolates of IHNV as obtained from chinook salmon in the Sacramento and other river drainages in California.

Although we have been remiss in publishing this information in a scientific journal to date, we are now finally putting it together with some recent data and will submit it shortly for publication.

Feel free to contact me if you need further details on the work.

Sincerely,

Ronald P. Hedrick
Professor

RPH:rph

DEPARTMENT OF FISH AND GAME
Fish Health Laboratory
2111 Nimbus Road
Rancho Cordova, CA 95670
Telephone (916) 358-2822

February 4, 2003

Mr. Carl Werder
United States Bureau of Reclamation
2800 Cottage Way
Sacramento, CA

Dear Mr. Werder

This letter summarizes the information I presented at the December 10, 2002 meeting with project management staff of the Battle Creek Restoration Project.

Few well-designed studies exist which address fish pathogen movement in ground water. The results of an excellent study conducted by scientists at Brigham Young University and Utah's Department of Natural Resources Fisheries Experiment Station were presented at the Whirling Disease Symposium, Denver, Colorado, 2000. In that study the movement of dye, bacteria, and triactinospores (TAMS) were observed in ground water at distances up to 0.6 miles in only 7 hours. Bacteria are about 6 times larger than IHN (infectious hematopoetic necrosis) virus, and TAMS are nearly 900 times larger. Viral particles could therefore move easily through these types of soils. This pathogen movement occurred near Midway Hatchery, Utah, which has a shallow water table and volcanic soils.

The similarities between Midway Hatchery and Mount Lassen Trout Farm's (MLTF) Willow Springs and Jeffcoat West sites are remarkable. Each site has a shallow aquifer and volcanic soils. The risks of MLTF fish reared at Jeffcoat West and Willow Springs to fish pathogens, including IHNV, shed from anadromous salmonids traveling upstream of water intakes is significant. Corrective/protective measures should be taken to protect water supplies at those two MLTF facilities from contamination with potentially infective natural waters.

Additional observations of IHNV movement through groundwater have been made by Oregon Department of Fish and Wildlife fish pathologists. Kokanee salmon in Lake Billychinook experience annual IHNV epizootics. Steelhead fingerlings reared at Round Butte Hatchery directly below Lake Billychinook also contract IHNV.

Strain typing of the two isolates identifies them as equal, strongly implicating the kokanee as the source of the virus. The spring water source for Round Butte Hatchery originated after the construction of the dam and filling of the lake, i.e. the spring is lake water traveling through soils. This provides further evidence for the transmission of IHNV through groundwater.

Additionally the possibility of IHNV transfer by animal vectors was discussed. From all available current information the transmission of IHNV by direct hydrologic connection is the only well documented route. While transference by vectors is theoretically possible, no known cases have been reported in the literature, or through personal contacts with fish pathologists from other states.

Sincerely,

Dr. Ed Pert, Chief
Fisheries Programs Branch,

cc: Dr. William T. Cox, FPB
Mr. Donald Koch, Regional Manager, Redding, DFG
Mr. Bob Hulbrock, Aquaculture Coordinator, DFG
Mr. Harry Rectenwald, Senior Fisheries Biologist, DFG
Mr. Mike Berry, Associate Fisheries Biologist, DFG
Mr. Phil Mackie, Mount Lassen Trout Farms

Comment Letter L3—California Farm Bureau Federation, Pam Giacomini, Director, Natural Resources and Commodities, (October 14, 2003)

Response to Comment L3-1

See the response to Comment L1-1.

Response to Comment L3-2

Increasing the number of anadromous fish in Battle Creek, which could potentially carry serious and catastrophic fish diseases, could increase the risk of infecting farmed trout at the MLTF facilities. These facilities are hydrologically connected to Battle Creek. Because Mount Lassen Trout Farm markets "disease-free fish," an infection in their aquaculture facilities could have an adverse effect on their business. DFG considers aquaculture an agricultural use; the project itself would not convert agricultural land to another use. Therefore, direct effects on MLTF are addressed under Effect 4.16-5 in Section 4.16 as a socioeconomic effect (in lieu of agricultural) because these effects are associated with how MLTF conducts their aquaculture business. Master Response E provides additional information relating to how this impact has been analyzed and addressed.

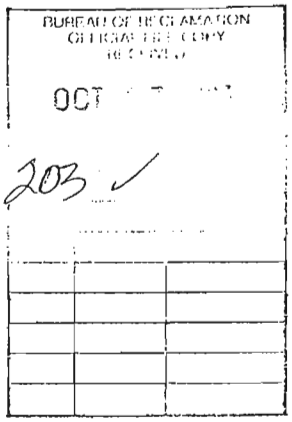
Response to Comment L3-3

See the response to Comment L1-1.

Response to Comment L3-4

See the response to Comment L1-1.

TEHAMA COUNTY FARM BUREAU



October 14, 2003

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Re: Battle Creek Draft EIR/EIS

Dear Ms. Marshall and Mr. Canaday:

The Tehama County Farm Bureau represents more than 1000 farm and ranch families who make their living caring for the animals, wildlife and natural resources on their property while producing safe, plentiful and wholesome food and clothing for the people of California.

The Tehama County Farm Bureau and the California Farm Bureau Federation believes the July 2003 Draft EIS/EIR document has numerous inadequacies that leave many questions as to the completeness of the EIS/EIR in addressing key issues of fish pathogen transfer into hatchery and wild trout stocks. In addition, we believe there is a failure to identify and commit to solutions for negating the risk of pathogen transfer, which will have adverse effects on private aquaculture industry as well as pose significant risk to the resources of the State of California. We further believe that impacts to the rural communities surrounding the Battle Creek Watershed have not been adequately addressed due to the erroneous approach of the EIS/EIR, which was to focus solely on the construction aspect of the project, rather than the long-term operation of the project. These inadequacies are detailed below.

I. Inadequacy of addressing fish pathogen transfer
II. Failure of the EIS/EIR to identify significant impacts to the environmental resources of the State of California
III. Failure of the EIS/EIR to identify feasible mitigation measures for impacts to hatchery and wild trout stocks and to the environmental resources of the State of California

In summary, we believe that the Draft EIS/EIR fails to address significant impacts and mitigation necessary. We urge you to address the above listed concerns. If you have questions or want to discuss any of the above raised issues, please don't hesitate to call.

Sincerely,

Robert A. Williams
President

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Comment Letter L4—Tehama County Farm Bureau, Robert A. Williams, President, (October 14, 2003)

Response to Comment L4-1

See the response to Comment L1-1.

Response to Comment L4-2

See the response to Comment L1-1.

Response to Comment L4-3

See the response to Comment L1-1.

Response to Comment L4-4

See the response to Comment L1-1.