Project 184
Lake Aloha Downstream Ponds
Trout Removal Plan

EL DORADO IRRIGATION DISTRICT
2890 Mosquito Road
Placerville, CA 95667

September 17, 2007

Version 1.0

This study plan is a result of a collaborative effort between El Dorado Irrigation District (EID), Project 184 Ecological Resources Committee (ERC), USDA Forest Service (FS), State Water Resources Control Board (SWRCB), and California Department of Fish and Game. This study plan has been developed to satisfy the Lake Aloha downstream pond trout removal requirements set forth in the Project 184 Settlement Agreement (EID 2003), U.S. Forest Service 4(e) License Condition Number 33 (USFS 2003), Section 3 of the El Dorado Relicensing Settlement Agreement (Settlement) Monitoring Program, and the California State Water Resources Control Board Section 401 Clean Water Act Water Quality Certification Condition Number 4 (SWRCB 2006).

The scope of this plan has been defined by the Lake Aloha downstream pond trout removal requirements set forth in these documents and has been agreed to by El Dorado Irrigation District (EID).

1.0 Background

The El Dorado Irrigation District (EID) entered into a Relicensing Settlement Agreement with the Federal Energy Regulatory Commission (FERC) for the El Dorado Hydroelectric Project (Project 184) in April 2003 and received the license for Project 184 on October 18, 2006. Under the agreement, EID is to develop a plan for survey and trout removal in the ponds downstream of Lake Aloha, in consultation with FS and CDFG, that includes identification of specific pools to be covered, an initial survey and removal effort, determination of when additional survey and removal would be conducted, specific survey and removal protocols that minimize potential adverse effects, and reporting requirements.

Lake Aloha typically begins filling during late March or early April. The reservoir normally reaches its maximum level for the year in late June or early July, at which time drawdown begins. The reservoir usually reaches its minimum level by late August to mid-September. During spring runoff and when filling the reservoir, the water level has been known to spill over the auxiliary dams 1 through 7. An initial fish removal was performed in 2004. A total of five ponds were identified during the 2004 effort. The reservoir did not spill during 2005, however, Lake Aloha spilled during the spring runoff of 2006. As such, under the provisions of Project 184, EID will remove fish from the ponds below Lake Aloha in years that the lake spills.

2.0 Study Plan Objectives

1. To remove trout which may have moved out of Lake Aloha and into the ponds below the dam and adjacent creek, and thereby improve conditions for mountain yellow-legged frogs (*Rana muscosa*).

2. To record observations of wildlife made during this effort, especially mountain yellow-legged frogs (MYLF).

3.0 Study Area and Schedule

The study area identified for trout removal consists of the ponds below the 7 auxiliary dams around Lake Aloha (Figure 1). Based on topography of the areas below the auxiliary dams, it was determined that only four ponds were likely to receive runoff from the auxiliary dams in the event of a spill (EN2, 2004). A fish removal field survey will be performed during 2007 to verify no trout currently exist in the ponds as a result of the 2006 spill. In additional years that the lake spills, EID will again remove fish from the ponds below Lake Aloha. Each round of sampling will occur over a two to three day period due to the number of locations and necessary sampling effort at each location.

4.0 Fish Removal

EID will employ several methods designed to target and remove fish from these ponds after a spill event. Methods may include light weight experimental survey gill netting, electrofishing, and hook and line removal. Visual surveys using mask and snorkel may be used to verify the presence/absence of fish in ponds, as well as to evaluate the efficacy of the various fish removal methods.

EID will employ lightweight experimental bottom nets. Two of these gill nets will be set for a period of 24 hours in each suitable pond for continual fishing during the removal effort. Electrofishing will be conducted as a supplement to gill netting where appropriate (e.g., near the wadeable margins of ponds), as well as in any adjacent stream habitats present that may potentially support fish. A battery-powered Smith-Root Model 12 backpack electrofisher (or equivalent model) will be used to perform electrofishing surveys.

All fish will be identified to species, sex (where possible) and measured to the nearest millimeter of fork length (FL). Digital photographs of representative specimens will also be taken. Physical habitat conditions will be described for each fish-removal site including site morphology, habitat structure and features, water clarity and color, and weather conditions; plus a diagram of each fish-removal site will be drawn for reference. Sample datasheets for fish-removal surveys are included in Appendix A for reference.

The FS, ERC, and SWRCB have the flexibility to alter the monitoring program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable methodology to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected.

5.0 Reporting

The data collected under the monitoring protocols identified in this plan will be electronically compiled and distributed by January 31, to the FS, ERC, and SWRCB. The report will be circulated to the ERC for review and consideration at least two weeks prior to the annual meeting, which will occur by April 1. Based on the results of the annual meeting, EID will submit an annual report to FS, ERC, SWRCB, and FERC by June 30 of each year. The report will summarize the results of any ongoing monitoring or study efforts, any changes to be implemented under the license, and a summary of any unresolved issues and proposed actions to

resolve each issue. All ERC members, FS, and SWRCB will have 30 days to review and comment on the draft annual report prior to its submittal to FERC. The final annual report will be distributed to FS, ERC, and SWRCB after submission to FERC.

The annual report will include the issues addressed, objectives, study area including sampling locations, methods, and results. The report will also include relevant graphs and tables to describe the results at each pond. Discussion appropriate to results and supportive of analyses and conclusions will be provided. All reports will be prepared in a format so that they can easily be reviewed by the ERC and filed with the FERC after approval. E-mail updates and CD of all reporting information will be provided to the ERC. Additionally, EID will coordinate with other agencies to share MYLF data or additional important information, where feasible.

6.0 Literature Cited

EID –El Dorado Irrigation District. 2003. El Dorado Relicensing Settlement Agreement. El Dorado Project FERC Project 184.

EN2 Resources Inc. 2004. Lake Aloha 2004 Initial Trout Survey and Removal Report. El Dorado Hydroelectric Project (FERC Project No. 184). October 2004.

California Department of Fish and Game. 2006. Sierra Nevada Fish and Amphibian Inventory Data Sheet Instructions. California Department of Fish & Game Fish/Amphibian Survey Protocols - Version 2.2 May 8, 2006.

State Water Resources Control Board of California. 2006. Clean Water Act Section 401 Technically-Conditioned Water Quality Certification for Federal Energy Regulatory Commission El Dorado Hydroelectric Project (FERC No. 184).

United States Forest Service. 2003. Forest Service Final Terms and Conditions Provided Under 18 CFR 4.34(b)(1) In Connection With the Application for Relicensing of The El Dorado Hydroelectric Project (FERC No. 184). October 31, 2003.

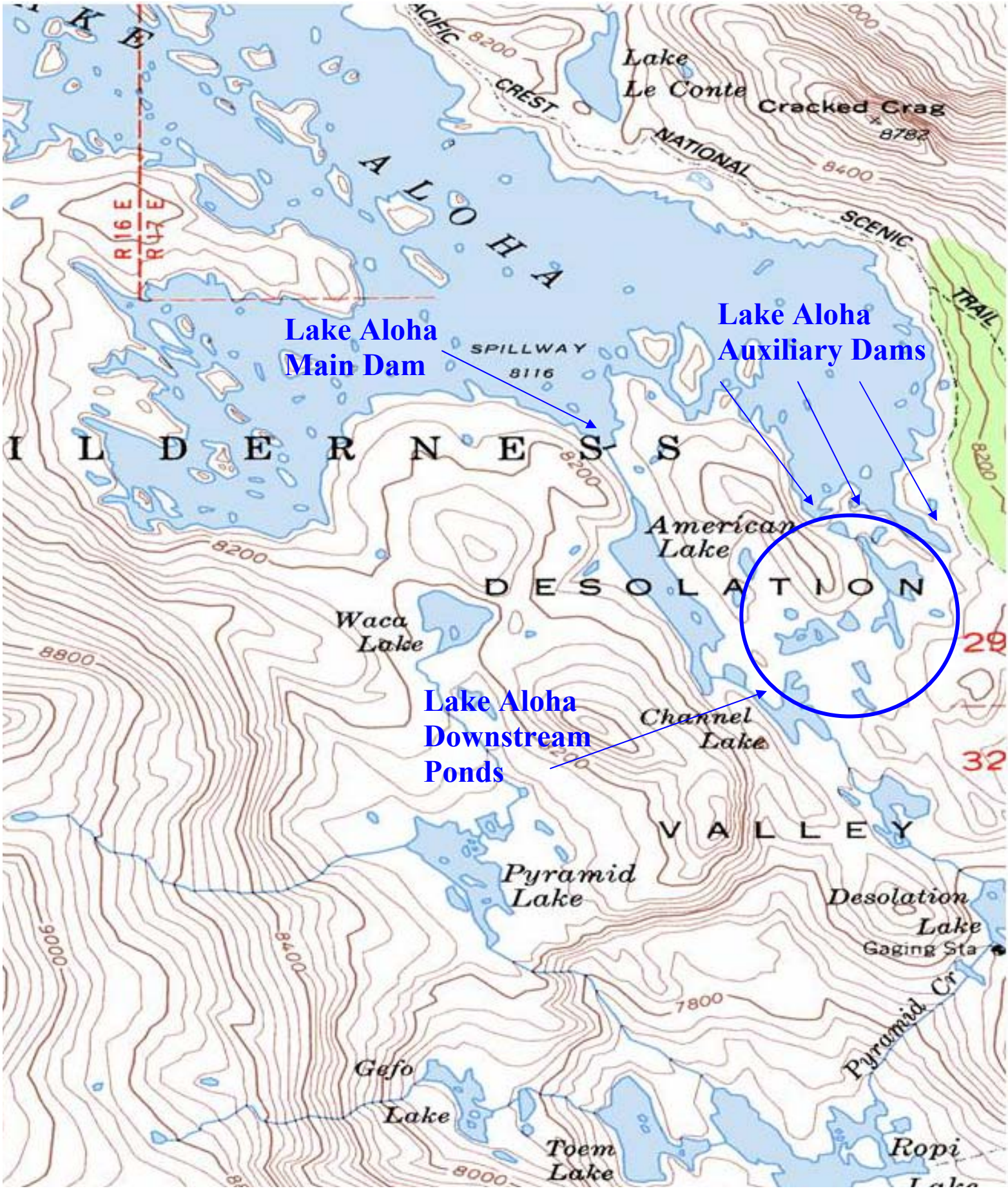

Figure 1. Sampling locations for trout removal and mountain yellow-legged frog surveys in the downstream ponds

Appendix A:

Sample Fish Removal Datasheets

Amphibian and Fish Inventory Data Sheet - 2001

Site ID:	Date: (mmm-dd-yy)	Water type: Lake Unmapped pond Stream Marsh Spring seep ⁞ Perennial Ephemeral If not sampled, reason: stream widening frozen, dry, or not found part of another water body

Lake Name: (from map)	Planning Watershed: (from "Lakes Checklist")	Location (use common language)

County:	Elevation: m ft	East UTM:	North UTM: (only for lakes w/o a site ID; obtain from GPS unit)

Topographic Map (7.5'):	Weather: Clear Overcast Rain Snow	Wind: Calm Light Strong	pH: source:	Max. lake depth (m):	Team members:

Person recording habitat information: | Substrate transects with aquatic vegetation:

Littoral zone substrate composition (3m; ~50 total):
__________Silt ___________< 2 mm ___________2-32 mm ___________32-64 mm __________64-256 mm __________> 256 mm ________bedrock

Shoreline terrestrial substrate composition (1.5m; ~50 total):
________ Silt-64 mm ___________ >64-256 mm ___________ > 256 mm __________ grass/sedge/forb __________ woody debris __________brush

Inlets	Outlets
Width (cm) and depth (cm) of inlets (width/depth): (1)____/____ (2)____/____ (3)____/____ (4)____/____ (5)____/____ (6)____/____ no inlets	Width (cm) and depth (cm) of outlets (width/depth): (1)____/____ (2)____/____ (3)____/____ none
Fish present in inlets? (1) Y N ? (2) Y N ? (3) Y N ? (4) Y N ? (5) Y N ? (6) Y N ?	Fish present in outlets? (1) Y N ? (2) Y N ? (3) Y N ?
Distance to first barrier on inlets (m): (1)__________ (2)__________ (3)__________ (4)__________ (5)__________ (6)__________	Distance to first barrier on outlets (m) (1)__________ (2)__________ (3)__________
Description of fish barriers on inlets: (e.g. "2 m falls", or "10 m cascade") (1)__________ (2)__________ (3)__________ (4)__________ (5)__________ (6)__________	Description of fish barriers on outlets: (1)__________ (2)__________ (3)__________
UTM coordinates for fish barriers on inlets: (1)__________ (2)__________ (3)__________ (4)__________ (5)__________ (6)__________	UTM coordinates for fish barriers on outlets: (1)__________ (2)__________ (3)__________
Photo number(s) for fish barriers on inlets: (1)__________ (2)__________ (3)__________ (4)__________ (5)__________ (6)__________	Photo number(s) for fish barriers on outlets: (1)__________ (2)__________ (3)__________
Area of suitable spawning habitat on inlets (m^2): (1)__________ (2)__________ (3)__________ (4)__________ (5)__________ (6)__________	Area of suitable spawning habitat in outlets (m^2): (1)__________ (2)__________ (3)__________
Evidence of spawning in inlets: (1) Spawning fish Redds Fry None (4) Spawning fish Redds Fry None (2) Spawning fish Redds Fry None (5) Spawning fish Redds Fry None (3) Spawning fish Redds Fry None (6) Spawning fish Redds Fry None	Evidence of spawning in outlets: (1) Spawning fish Redds Fry None (2) Spawning fish Redds Fry None (3) Spawning fish Redds Fry None
Area of in-lake spawning habitat at inlets (m^2): (1)_________ (2)_________ (3)_________ (4)_________ (5)_________ (6)_________	Area of in-lake spawning habitat at outlets (m^2): (1)_________ (2)_________ (3)_________

Fairy shrimp	Present in lake? Y N Collection made? Y N	In lake-associated pools? Y N Collection made? Y N	Other locations? Collection made? Y N	describe locations on map

Amphibian observer(s):	Survey start time: End time (hhmm):	Total survey duration: (min)	Weather: Clear Overcast Rain Snow Wind: Calm Light Strong
Stream only: **Start** East UTM North UTM	**End** East UTM North UTM	Stream order:	Color: Clear Stained Turbidity: Clear Cloudy

Amphibian/reptile species	# adults	# subadults	# larvae	# egg masses	diseased/checked	Survey Method
Calling? Y N Voucher? Y N #____						Visual Trapped Aural Hand Collected Dip Net/Seine
Calling? Y N Voucher? Y N #____						Visual Trapped Aural Hand Collected Dip Net/Seine
Calling? Y N Voucher? Y N #____						Visual Trapped Aural Hand Collected Dip Net/Seine
Calling? Y N Voucher? Y N #____						Visual Trapped Aural Hand Collected Dip Net/Seine
Calling? Y N Voucher? Y N #____						Visual Trapped Aural Hand Collected Dip Net/Seine

Water Temp. (.5m from shore, 10cm deep): @ C or F	Air Temp. (1m above water): @ C or F

amphibians: mountain yellow-legged frog (RAMU) Pacific tree frog (HYRE) Yosemite toad (BUCA) CA newt (TATO) bullfrog (RACA) Long-toed salamander (AMMA)
reptiles: W. aquatic garter snake (THCO) W. terrestrial garter snake (THEL) common garter snake (THSI) W. pond turtle (CLMA)
fish: rainbow trout (RT), golden trout (GT), cutthroat trout (CT), brown trout (BN), brook trout (BK), hybrids (GT x RT, CT x RT)

Drawing of lake perimeter, inlets, outlets, in-lake spawning areas, fairy shrimp locations, and areas of special interest:
Reference areas of special interest with photo numbers and provide comments describing photo features.

Photo Numbers

If lake is not shown on topo map, give approximate dimensions (m):_____

Description of inlets, including barriers, spawning areas, and other features of interest:
Reference areas of special interest with photo numbers and provide comments describing photo features.

Photo Numbers

Description of outlets, including barriers, spawning areas, and other features of interest:
Reference areas of special interest with photo numbers and provide comments describing photo features.

Photo Numbers

Fish survey: Visual Nets	Justification (if visual):

PLEASE Return to: Curtis Milliron, Ca. Dept. of Fish and Game (760) 872-1125; 407 W. Line Street Bishop, CA 93514

May, 2001 Version 1.0 J:YOSEdatasheet00a

Field review_____ Copied_____ Entered_____ Proofed_____

Site ID:	Water Temp C or F (at 1 m)	Description of net location: nr inlet nr outlet neither	Net set time (hhmm): Date:	Net pull time (hhmm): Date:

Comments:

					Egg Stage				
Fish #	Species	Total Length (mm)	Weight (g)	Sex	Early	Ripe	Late	Otoliths?	Comments
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Field review_____ Copied_____ Entered_____ Proofed_____

Site ID:

Fish #	Species	Total Length (mm)	Weight (g)	Sex	Egg Stage			Otoliths?	
					Early	Ripe	Late		Comments
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PLEASE Return to: Curtis Milliron, Ca. Dept. of Fish and Game (760) 872-1125; 407 W. Line Street Bishop, CA 93514

Field review_____ Copied_____ Entered_____ Proofed_____

The licensee also does not propose to submit a copy of the draft or final report to the CDFG. WQC Condition 4 identifies the CDFG as one of the agencies to receive the report.

The licensee's plan, as modified herein, should improve conditions below the Lake Aloha auxiliary for yellow-legged frogs. The modified plan should be approved.

The Director Orders:

(A) The Trout Removal Plan filed August 9, 2007, pursuant to Article 401 is approved, subject to the modifications in Paragraph B.

(B) The licensee shall distribute the draft annual report on Lake Aloha trout removal to the U. S. Forest Service, the California Department of Fish and Game, the California State Water Resources Control Board, and the Ecological Resources Committee. The licensee shall allow the agencies and the committee at least 30 days to review the report. The licensee shall file the final 2008 annual report with the Commission by July 30, 2008. Subsequent reports are due by July 30 of the year trout removal activities occur.

The licensee shall include in the final report any comments and recommendations made by the U. S. Forest Service, the California Department of Fish and Game, the California State Water Resources Control Board, and the Ecological Resources Committee. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons based on project-specific information. The Commission reserves the right to modify the Trout Removal Plan to protect yellow legged frogs below Lake Aloha.

(C) This order constitutes final agency action. Request for rehearing by the Commission may be filed within 30 days from the date of the issuance of this order, pursuant to 18 CFR § 385.713.

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

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

EL DORADO IRRIGATION DISTRICT PROJECT NO. 184 – 129

ORDER MODIFYING AND APPROVING TROUT REMOVAL PLAN UNDER ARTICLE 401

(Issued January 23, 2008)

The El Dorado Irrigation District (licensee) filed on August 9, 2007, a plan to remove trout from pools below the Lake Aloha Auxiliary Dams after spills. The plan was filed pursuant to Article 401 of the license for the El Dorado Project [1]. The project is located on the South Fork American River (SFAR) and its tributaries in El Dorado, Alpine, and Amador Counties, California, and occupies Federal lands administered by the U.S. Forest Service (USFS).

LICENSE REQUIREMENTS AND BACKGROUND

Article 401 requires the licensee to file for Commission approval, the plans or reports required by various conditions found in the California State Water Resources Control Board (State Board) water quality certification (WQC) and the USFS final Section 4 (e) conditions. WQC Condition 4 and USFS Condition 33 require the licensee to operate Lake Aloha to prevent water in the reservoir from spilling over Auxiliary Dams 1- 7 during spring run-off and while the reservoir is filing. If spill occurs, the licensee shall develop a plan approved by the USFS and the CDFG to manually remove trout from the pools below the dams to improve conditions for mountain yellow-legged frogs (*Rana muscosa*). The licensee shall initiate removal of the trout within 30 days after the spill occurs.

By July 30 of each year, the licensee shall produce a monitoring report documenting whether spill occurred over the auxiliary dams, and whether trout were found and removed. The licensee shall provide the monitoring report to the USFS, the CDFG, the Environmental Resources Committee (ERC; required by USFS Condition 38), and the Chief of the Division of Water Rights of the State Board. If no fish are located after five years of post-spill surveys, the licensee shall consult with the USFS and the CDFG to determine whether further surveys are necessary. The licensee shall continue to

1 117 FERC ¶ 62, 044 (2006)

produce the annual monitoring report until the USFS and the CDFG determine that additional surveys are no longer required.

LICENSEE'S PLAN

The licensee identified four pools below the seven auxiliary dams that were likely to receive flow during a spill event. They propose to use snorkeling to verify the presence of trout in the pools. They propose to use a variety of methods, including gill nets, electrofishing, and hook-and-line to remove any trout observed. Snorkeling will also be used to verify the efficacy of the removal efforts.

The removal effort will occur over a 2 - 3 day period, given the number of sampling locations and the required sampling effort. Captured fish will be identified to species, sex, weighed, and measured. Photographs of representative specimens will be taken. Physical parameters at each removal site will be recorded, and a site diagram will be prepared.

The licensee proposes to distribute the data collected under this plan to the USFS, ERC, and State Board electronically by January 31. A report on the data collection will be distributed to the ERC at least 2 weeks prior to the annual meeting (typically held by April 1). The licensee proposes to submit a report to the USFS, the ERC, the State Board, and the Commission by June 30. The USFS, ERC, and State Board will have 30 days to review and comment on the draft annual report prior its submittal to the Commission.

AGENCY COMMENTS

The USFS letter to the licensee dated July 6, 2007, approved the plan. The CDFG, by letter dated July 31, 2007, also approved the plan.

DISCUSSION AND COMMENTS

The methodologies proposed by the licensee in the Trout Removal Plan appear adequate to detect and eliminate trout from the pools below the four lake Aloha Auxiliary Dams that are most likely to receive spill flows. The proposed reporting schedule, however, is confusing. It is unclear if the licensee proposes to submit a draft of the annual report to the USFS, the ERC, the State Board, and the Commission by June 30, and then give the agencies and the ERC 30 days to provide comments and recommendations before a final annual report is filed with the Commission. The filing schedule will be clarified in ordering paragraph (B).