

COVER SHEET

- a. Title: Amended Application for New License, Yuba River Development Project, FERC Project No. 2246
- b. Subject: Exhibit E, Environmental Report of Amended Final License Application
- c. Lead Agency: Federal Energy Regulatory Commission
- d. Abstract: On April 27, 2014, Yuba County Water Agency (YCWA) filed with the Federal Energy Regulatory Commission (FERC or Commission) a final application (FLA) for a new license for YCWA's Yuba River Development Project (P-2246). The Project is located on the Yuba River, North Yuba River, Middle Yuba River and Oregon Creek, which is a tributary to the Middle Yuba River, in Yuba, Nevada and Sierra counties, California.

The existing Project occupies 4,432.8 acres of federal land – 4,416.7 acres managed by the United States Department of Agriculture, Forest Service as parts of the Tahoe National Forest and Plumas National Forest; and 16.1 acres administered by the United States Army Corps of Engineers (USACE) as part of Englebright Dam and Reservoir.

YCWA proposes seven general changes to existing Project facilities: 1) addition of a Tailwater Depression System (TDS) at New Colgate Powerhouse; 2) addition of a new Auxiliary Flood Control Outlet at New Bullards Bar Reservoir; 3) modification to the Our House Diversion Dam fish release outlet; 4) modification to the Log Cabin Diversion Dam fish release outlet; 5) modification to the Lohman Ridge Diversion Tunnel Intake; 6) modifications to recreation facilities at New Bullards Bar Reservoir; and 7) modifications to Project roads. In addition, YCWA proposes to modify the existing FERC Project Boundary, and proposes 41 protection, mitigation and enhancement (PM&E) conditions.

In general, YCWA proposes to continue to operate the Project as it has operated historically (i.e., since 2006 when the Lower Yuba River Accord went into effect), with the addition of 41 conditions.

On or about April 7, 2016, YCWA filed this Amended FLA for the convenience of the Commission and Relicensing Participants because, subsequent to filing its FLA, YCWA, agencies and other stakeholders reached collaborative agreement on more than 30 PM&E) conditions, many of which include detailed implementation plans.

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f. Transmittal: This Exhibit E to relicense the Yuba River Development Project is made available to federal, state and local agencies, Native American tribes, non-governmental organizations, and members of the public on or about April 7, 2016.

FOREWORD

The Federal Energy Regulatory Commission (FERC or Commission), pursuant to the Federal Power Act (FPA)¹ and the United States Department of Energy Organization Act² is authorized to issue licenses for up to 50 years for the construction and operation of non-federal hydroelectric development subject to its jurisdiction, on the necessary conditions:

That the project... shall be such as in the judgment of the Commission will be adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in section 4(e)³.

The Commission may require such other conditions not inconsistent with the FPA as may be found necessary to provide for the various public interests to be served by the project.⁴ Compliance with such conditions during the licensing period is required. The Commission's Rules of Practice and Procedure allow any person objecting to a licensee's compliance or noncompliance with such conditions to file a complaint noting the basis for such objection for the Commission's consideration.⁵

¹ 16 U.S.C. § 791(a)-825r, as amended by the Electric Consumers Protection Act of 1986, P.L. 99-495 (1986) and the Energy Policy Act of 1992, P.L. 102-486 (1992).

² P. L. 95-91, 91 Stat. 556 (1977).

³ 16 U.S.C. § 803(a).

⁴ 16 U.S.C. § 803(g).

⁵ 18 CFR § 385.206 (1987).

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GLOSSARY - DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

Term	Definition
A	
A	ampere
accretion flow	The incremental flow between two points. Also known as local inflow.
ac	acre
ac-ft	acre-feet or acre-foot; the amount of water needed to cover one acre to a depth of one foot (43,560 cubic feet or 325,900 gallons)
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
adit	An almost vertical pipe or short horizontal passage entering a tunnel, either to add water from a conduit, sluice or other water source, or as a maintenance access tunnel (also referred to as a portal)
aestivation	Similar to hibernation, where an animal is dormant during unfavorable summer-like conditions. For example, to survive long periods of drought, some reptiles and amphibians become inactive or "aestivate."
AFRP	Anadromous Fish Restoration Program
afterbay	A reservoir located immediately downstream from a powerhouse, sometimes used to re-regulate flows to the river or stream.
Amended FLA	Amended Final License Application
anabat	An electronic instrument used to detect and record high frequency vocalization of bats.
anadromous	Anadromous fish live most of their lives in saltwater and return to freshwater to spawn.
ancillary	Provides added support.
APE	Area of Potential Effect, as pertaining to Section 106 of the National Historic Preservation Act
AW	American Whitewater
B	
BA	Biological Assessment
Basin Plan	Basin Plans provide the basis for protecting water quality in California. Basin Plans are mandated by both the Federal Clean Water Act and the State Porter-Cologne Water Quality Act. Sections 13240-13247 of Porter-Cologne specify the required contents of a regional basin plan. For a given region, each plan contains 1) the beneficial uses of each water body; and 2) water quality objectives to ensure the reasonable protection of beneficial uses.
Bay-Delta	San Francisco Bay-San Joaquin Delta Estuary
BCC	Bird of Conservation Concern, an administrative designation by USFWS.
BLM	United States Department of the Interior, Bureau of Land Management
BMI	benthic macroinvertebrates
BO	Biological Opinion
bypass flow	Bypass flows are those flows that are required to be released into a stream and do not flow through the powerhouse.
C	
°C	degrees Celsius
Cal Fish and Game	California Department of Fish and Game; also referred to as CDFG
CALFED	CALFED Bay-Delta Program; state and federal interagency committee with management and regulatory responsibility for the Bay-Delta Estuary, now California's Delta Stewardship Council.
Cal-IPC	California Invasive Plant Council
CalTrans	California Department of Transportation
CalVeg	Classification and Assessment with Landsat of Visible Ecological Groupings. The Forest Service's classification system of California's existing vegetation communities. Original information was collected using remote sensing techniques along with field verification.
CAS	California Academy of Sciences
CD	compact disc
CDBW	California Department of Boating and Waterways
CDEC	California Data Exchange Center
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game; also referred to as Cal Fish and Game
CDPR	California Department of Parks and Recreation
CE	A species or subspecies listed as endangered under the California Endangered Species Act
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act

Glossary (continued)

C (cont'd)	
CESA	California Endangered Species Act
cf or ft ³	cubic feet
CFBF	California Farm Bureau Federation
CFR	Code of Federal Regulations
cfs	cubic feet per second. One cfs equals approximately 1.98 acre-feet per day.
CHRIS	California Historical Resources Information Center
cm	centimeter
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
Commission	Federal Energy Regulatory Commission; also referred to as FERC.
component	A named data set in an operation model that is a building block for a condition.
conceptual design for recreation facilities	A conceptual design is the designer's initial communication to convey proposed design solutions. Conceptual designs for a facility may consist of diagrammatic sketches, bubble diagrams, line diagrams, preliminary floor plans, or renderings. A conceptual design is prepared prior to a site development plan. (Forest Service Handbook 7309.11, Chapter 30.)
condition	The main building block of a scenario in an operation model containing the data used to simulate the system.
conduit	A pipe, flume or canal used for diverting or moving water from one point to another, usually used when there is no existing streambed or waterway.
conjunctive use	Conjunctive use of surface and groundwater consists of combining the use of both water sources in order to (1) minimize the undesirable physical, environmental, and economical effects of using each and (2) optimize the water demand/supply balance.
consumptive use of water	Water no longer available for use because it has evaporated, transpired, or has been incorporated into products and crops.
Contact List	List of Interested Parties that have provided an e-mail address to the Licensee for distribution of information regarding the Relicensing. Also referred to as Relicensing Contact List.
CPUE	catch per unit effort
Critical Habitat	Areas of land or water that the United States Fish and Wildlife Service or National Marine Fisheries Service has designated to have the physical or biological features essential to the conservation of a species listed under the federal Endangered Species Act.
CRLF	California red-legged frog
CSC	California Species of Concern, an administrative designation by Cal Fish and Wildlife.
CT	A species or subspecies listed as threatened under the California Endangered Species Act.
CTR	California Toxics Rule
cu yd	cubic yard
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Federal Clean Water Act
CWHR	California Wildlife Habitat Relationships System
CWT	coded wire tag
D	
Dam Slope – Downstream Face	The slope of the downstream face of the dam.
Dam Slope – Upstream Face	The slope of the upstream face of the dam.
Dam Spillway Control	The type of device that controls the spillway.
Dam Spillway Crest Elevation	The elevation of the lowest point of the spillway.
Dam Spillway Type	The type of spillway.
Dam Type	A description of the type of dam.
Dam Year Placed in Service	The first calendar year water was impounded behind the dam.
dbh	diameter at breast height
dam fish release requirement	The flow that must be released to the stream downstream of the dam; also known as minimum streamflow release requirement or bypass flow.
discharge	water released from a dam
diversion dam	Generally a small dam with minimal storage and a primary purpose of routing a portion of upstream flow into a diversion conduit.
DEIR	Draft Environmental Impact Report
Delta	Sacramento-San Joaquin River Delta
DEM	Digital Elevation Model – The format of the USGS digital elevation data sets containing elevation values that have been primarily derived from the USGS topographic map series.
Development	The Project facilities situated immediately upstream of a powerhouse.

Glossary (continued)

D (cont'd)	
distribution system	The substations, transformers, and lines that convey electricity from high-power transmission lines to the consumer. Usually 115 kV and lower voltage.
DLA	Draft License Application
DO	dissolved oxygen
DOC	dissolved organic carbon
DPS	distinct population segment
Draft EA	Draft Environmental Assessment
DSOD	(California) Division of Safety of Dams
DSS	The United States Army Corps of Engineers' Hydrologic Engineering Center Data Storage System is a database system designed to store and retrieve scientific data.
DVD	Digital Versatile Disk
DWR	California Department of Water Resources
E	
EA	Environmental Assessment
EAP	Emergency Action Plan
EC	electrical conductivity
ECPA	Electric Consumers Protection Act
EDR	Englebright Dam Reach
EFH	Essential Fish Habitat
EIA	Energy Information Administration
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
El.	Elevation
endemic (adj.) endemism (noun)	Restricted to a certain locality or region. Indigenous. Native.
EPA	United States Environmental Protection Agency
EPT	Orders of benthic insects: Ephemeroptera, Plecoptera, and Tricoptera.
ESA	Federal Endangered Species Act
ESU	evolutionarily significant unit
EVC	existing visual condition
F	
°F	degrees Fahrenheit
FC	A species or subspecies currently proposed as a candidate for listing under the ESA.
FE	Federal Endangered Species. A species or subspecies listed as endangered under the Federal Endangered Species Act.
FEA	Final Environmental Assessment
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FEPD	A federally listed endangered species currently proposed for delisting from the ESA.
FERC	Federal Energy Regulatory Commission; also referred to as Commission
FERC determination	A binding decision made by FERC during the relicensing process.
FERC Project Boundary	The area Licensee uses for normal Project operations and maintenance, and is shown on Exhibits G, J, and K of the current license.
FGDC	Federal Geographic Data Committee: promotes the coordinated development, use, sharing, and dissemination of geographic data.
FHSA	Federal Historic Sites Act
FHWA	Federal Highway Administration
fishway	A structure on or around natural or artificial barriers to facilitate fish migration, such as a fish ladder.
flashboards	Removable boards installed seasonally in reservoir spillways to temporarily increase storage capacity.
flood elevation	The reservoir elevation at which the plant's reservoir spills.
FLPMA	Federal Land Policy and Management Act
flume	A lined structure, commonly made of wood, metal or concrete, used for conveyance of water, usually where no streambed exists or the topography is not suitable for a canal or tunnel.
FMP	Fire Management Plan
FMU	Fire Management Unit
forebay	A reservoir upstream from the powerhouse from which water is drawn into a tunnel or penstock for delivery to the powerhouse.
Forest Service	United States Forest Service
FP	Fully Protected. A species or subspecies designated as "fully protected" under the California Fish and Game Code.

Glossary (continued)

F (cont'd)	
FPA	Federal Power Act
FPD	Federal Proposed Delisting. A species or subspecies proposed for listing as endangered under the federal Endangered Species Act.
FPE	Federal Proposed Endangered. A species proposed for listing as “endangered” under the federal Endangered Species Act.
fps	feet per second
FPT	Federal Proposed Threatened. A species or subspecies proposed for listing as threatened under the federal Endangered Species Act.
FSS-P	A species or subspecies designated as “Sensitive” by the Forest Service when it occurs within the Plumas National Forest.
FSS-T	A species or subspecies designated as “Sensitive” by the Forest Service when it occurs within the Tahoe National Forest.
ft	foot or feet
FT	A species or subspecies listed as threatened under the federal Endangered Species Act.
FWN	Foothills Water Network
FW-P	A plant species or subspecies designated for the Watch List by the Plumas National Forest.
FW-T	A plant species or subspecies designated for the Watch List by the Plumas National Forest.
FYLF	foothill yellow-legged frog
G	
G	<i>giga</i>
g	<i>gram</i>
GAP	Gap Analysis Program. United States Geological Survey and UC Santa Barbara’s vegetation, land cover, and potential wildlife habitat map(s) for California.
generator	A machine, powered by a turbine that converts the rotating mechanical energy into electrical energy.
GIS	Geographic Information System
GMP	General Management Plan
gpd	gallons per day
gpm	gallons per minute
GPS	Global Positioning System
H	
HA	Commercially or recreationally harvested species; non-protected species.
HABS	Historic American Building Survey
HABTAT	United States Fish and Wildlife Service Instream Flow Incremental Methodology simulation model.
HAER	Historic American Engineering Record
HCP	Habitat Conservation Plan
head	The vertical height of water that represents potential energy.
head loss	The amount of head that is lost (to friction, etc.) between the headwater (reservoir/forebay/intake) and the tailwater.
HEC	Hydrologic Engineering Center of the United States Army Corps of Engineers
HEC-ResSim	United States Army Corps of Engineers – Hydrologic Engineering Center Reservoir Simulation model, Version 3.0. Also referred to as ResSim.
HEP	Habitat Expansion Plan
headwater	The upper tributaries that form the source of a stream.
HLCTS	Hydropower License Compliance Tracking System
hp	horsepower
HPMP	Historic Properties Management Plan
hr	hour
HSC	Habitat Suitability Criteria
HSI	Habitat Suitability Indices
HSPH	Hydrologic Simulation Program—Fortran
HU	Hydro unit, numbers assigned by California’s Regional Water Quality Control Boards.
HUC	Hydrologic unit codes developed by the Water Resources Council corresponding to hierarchal classification of hydrologic drainage basins in the United States. Each hydrologic unit is identified by a unique HUC.
Hz	hertz (cycles per second)
I	
IFIM	United States Fish and Wildlife Service, Instream Flow Incremental Methodology
IHA	Indicators of Hydrologic Alteration

Glossary (continued)

I (cont'd)	
installed capacity	Installed capacity refers to the maximum amount of electric energy, in megawatts, that can be produced by all of a dam's turbines operating to their maximum capacity for a given time. No power station ever produces at maximum capacity over a sustained period of time due to maintenance needs, lack of demand or, in the case of hydro dams, lack of water. Also called nameplate capacity or maximum capacity.
inverted siphon	A pressurized pipe section of conduit that crosses a stream channel or ravine.
ILP	Integrated Licensing Process
in	inch
inflow	The water entering a reservoir.
Initial License	The first license for a project issued by the Federal Energy Regulatory Commission.
Interchange	Electric power that flows from one entity to another.
Interested Parties	All governmental agencies, non-governmental organizations, Native American tribes, and unaffiliated members of the public who either: 1) routinely participate in Federal Energy Regulatory Commission relicensings in California, or 2) have advised the Licensee that they wish to become involved in one or more of the relicensing proceedings. The Licensee is considered to be an Interested Party.
introgression	The introduction of genes from one species into the gene pool of another species.
ISO	Independent System Operator
ITA	Indian Trust Asset
J	
K	
kg	kilogram: 1,000 grams
kg/day	kilograms per day
kg/ha	kilograms per hectare
kg/yr	kilograms per year
km	kilometer: 1,000 meters
kV	kilovolt: 1,000 volts
kVA	kilovolt amperes
kW	kilowatt: 1,000 watts
kWh	kilowatt-hour: 1,000 watt hours
L	
L	liter
lb	pound
Lead Agency	A lead agency is the agency responsible for ensuring that a course-of-action, i.e., project, complies with the California Environmental Quality Act and/or the National Environmental Policy Act.
lentic	Related to or living in standing water.
License Application	Application for a new license; submitted to the Federal Energy Regulatory Commission no less than two years in advance of expiration of an existing license.
license term	The period for which a license is issued by the Federal Energy Regulatory Commission. Usually between 30 and 50 years.
Licensee	Yuba County Water Agency
LiDAR	Light Detection and Ranging. An optical remote sensing technology that measures properties of scattered light to find range and/or other information of a distant target.
load shapes	The daily schedule of power pricing and the hour duration of each price.
local inflow	The incremental inflow between two plants (also known as accretion flows).
LOP	limited operating periods
lotic	Related to or living in flowing water.
LRMP	Land and Resource Management Plan
LWD	large woody debris
LWM	large woody material
M	
μ	micro
μg	microgram
μg/L	micrograms per liter (equals parts per billion, or ppb)
μmho/cm	micromhos per centimeter, a measurement of electrical conductivity
μS	microsiemens, a measurement of electrical conductivity
M	mega
m	meter (if the letter is used as a unit on its own)
m	milli (if the letter is placed in front of another unit)
mainstem powerhouse	A plant located on the main stream that runs through the system. Not a plant on a side or tributary stream.

Glossary (continued)

M (cont'd)	
maximum penstock velocity	The maximum velocity in the penstock at the "installed capacity" as defined above. This will occur at the smallest penstock diameter.
mbf	million board feet
MBTA	Migratory Bird Treaty Act
MCA/T	mandatory conditioning agencies/tribes
MCL	maximum contaminant level
Meeting Participant	A Relicensing Participant who attends a specific meeting. Meeting Participants are different for each meeting.
Member Unit	One of eight water users who participated in the Yuba Accord with YCWA.
metadata	"Data about data" - Describes the content, quality, condition, purpose and other characteristics of data.
mg	milligram
mg/L	milligrams per liter (equals parts per million, or ppm)
mgC/m ²	milligrams of carbon per square meter
mi	miles
mills/kWh	0.1 cent per kilowatt hour
minimum daily average flow	A requirement indicating the minimum flow of water that must be maintained at a measurement location when instantaneous flow measurements are averaged on a daily basis.
minimum instantaneous flow	A requirement indicating the minimum flow of water that must be maintained at a measurement location at any point in time.
minimum instream flow	A requirement indicating the minimum flow within a Project-affected reach, at a fixed measurement location. A minimum instream flow can be defined as an instantaneous flow or a time period-averaged flow.
MIR	minimal implementation requirement, a Forest Service system
MIS	A Forest Service Management Indicator Species
mm	millimeter
MNBMC	Migratory Bird of Management Concern, a Forest Service classification
morphometric	Measurement of the external form (size and shape) of an object.
MOU	memorandum of understanding
MPN	most probable number
mps	meters per second
MSA Act	Magnuson-Stevens Fishery Conservation and Management Act or Magnuson-Stevens Act
MVA	megavolt-ampere
MVZ	Museum of Vertebrate Zoology
MW	megawatt: 1,000 kilowatts
MWh	megawatt-hours: 1,000 kilowatt-hours
mya	million years ago
MYR	Middle Yuba River
N	
n	nano
NAD 83	North American Datum 1983 – Based on a definition of the size and shape of the earth. It is the datum for map projections and coordinates within the United States and throughout North America.
NADV	North American Vertical Datum
NAGPRA	Native American Graves Protection and Reparation Act
NAHC	California Native American Heritage Commission
NAIP	National Agriculture Imagery Program
Narrows 1 Powerhouse	PG&E's powerhouse located on the south side of the Yuba River below Englebright Dam.
Narrows 2 Powerhouse	YCWA's powerhouse located on the north side of the Yuba River below Englebright Dam.
natal	Of, relating to, or present at birth.
natural inflow	The flow that a point in the system would have received if there were no upstream flow regulation in the system. This flow is equal to the sum of all upstream accretion inflows. Also known as unimpaired or unregulated flows.
NCCP	Natural Community Conservation Plan
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NEPAct	National Energy Policy Act
New License	A license issued for a Project for which the Federal Energy Regulatory Commission has issued an initial license.
NFMA	National Forest Management Act
NFS	National Forest System
ng	nanogram
NGO	Non-Governmental Organization

Glossary (continued)

N (cont'd)	
NGVD	National Geodetic Vertical Datum
NHA	National Hydropower Association
NHI	Natural Heritage Institute
NHPA	National Historic Preservation Act
NID	Nevada Irrigation District
NMFS	Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NMFS-S	A species or subspecies of concern listed by the Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NMWS	Normal Maximum Water Surface elevation (applies to reservoirs and impoundments).
NOAA	Department of Commerce, National Oceanic and Atmospheric Administration
NOI	Notice of Intent
normal operating capacity	The maximum MW output of a generator or group of generators under normal maximum head and flow conditions.
NPDES	National Pollution Discharge Elimination System
NPN	Neuns-Ponto-Neer association, a soils classification.
NPS	National Park Service; also referred to as Park Service
NRCS	Natural Resource Conservation Act
NRHP	National Register of Historical Places
NRI	Nationwide Rivers Inventory
NTU	nephelometric turbidity unit
NWI	National Wetlands Inventory
NWIS	United States Geological Survey's National Water Information System
NYI	North Yuba Index
NYR	North Yuba River
O	
O&M	operation and maintenance
OEHHA	California's Office of Environmental Health Hazard Assessment
OEP	Federal Energy Regulatory Commission Office of Energy Projects (Formerly Office of Hydropower Licensing)
OHP	State Office of Historic Preservation
OHV	off-highway vehicle
operation and maintenance	The utilization of fixed Project assets for their intended use, as well as any ongoing, repetitive tasks associated with keeping fixed Project assets in acceptable condition, including safety inspections.
Operations Model	YCWA's relicensing Water Balance / Operations Model
ORV	off-road vehicle <i>or</i> Outstanding Remarkable Views
P	
P	phosphorus
PAC	Protected activity center
PAD	Pre-Application Document
PAD Questionnaire	Questionnaire developed and circulated by Yuba County Water Agency to gather existing, relevant, and reasonably available information for inclusion in the Yuba River Development Project Pre-Application Document.
PAOT	people at one time
Park Service	National Park Service; also referred to as NPS
PDF	portable document format
peaking	Operation of generating facilities to meet maximum instantaneous electrical demands.
penstock	An inclined pipe through which water flows from a forebay or tunnel to the powerhouse turbine.
penstock length	The length of the penstock (see definition for penstock, above) from the tunnel or upstream inlet to the turbine shut off valve.
penstock supports	The type of supports for the penstock.
penstock type	A description of the type of pipe and whether the pipe is surface or buried.
PFMC	Pacific Fishery Management Council
PG&E	Pacific Gas and Electric Company
PH	powerhouse
pH	The measure of the acidity or alkalinity of a substance or liquid.
PHABSIM	Physical Habitat Simulation Model
PIT	Passive Integrated Transponder
Plan	A common term for a county's general plan.
PLP	Preliminary Licensing Proposal
PM&E	Protection, Mitigation & Enhancement

Glossary (continued)

P (cont'd)	
PM&E measure	A Project facility, operation or management activity undertaken for the purpose of protecting or mitigating impacts that would result from continued Project operation and maintenance, or for the purpose of enhancing resources that would be affected by continued Project operation and maintenance.
PNF	Plumas National Forest, part of the United States Department of Agriculture, Forest Service
powerhouse maximum capability	Maximum megawatt output generated by the specific powerhouse. For powerhouses with two or more units, this value is the maximum simultaneous total output generated.
ppb	parts per billion
PPL	Pit-Pastolla-Lasvar association, a soils classification
ppm	parts per million, equals mg/L
powerhouse operation type	A reference to the manner in which water is scheduled through a powerhouse. At this time, there are six operating types: <u>Diversion Powerhouse</u> – A powerhouse that utilizes upstream diversions with minimal storage. <u>Fill and Spill</u> – A powerhouse that peaks with the load shape but gives priority to the upstream powerhouse and will spill in order for the upstream powerhouse to follow the load shape as closely as possible. <u>Strictly Peaking</u> – A powerhouse that peaks its discharge. Attempts to schedule water in highest value periods of day. Can instantaneously (in a 15-minute increment) change load. <u>Peaking with Ramp Rates</u> – A powerhouse where the water discharge still closely follows the load shape (powerhouse will Peak); however, the powerhouse is constrained by ramping rates. <u>Pure Run of River</u> – A powerhouse where inflows are equal to outflows on an instantaneous basis. <u>Re-regulating</u> – A powerhouse designed to regulate peaked discharge from upstream powerhouses into smoother discharges. This powerhouse releases constant outflows for the whole day. Re-regulating powerhouses may or may not be constrained by ramping rates.
Preliminary Information Package	A document issued by YCWA in 2009 to prepare Relicensing Participants for formal relicensing.
Project	YCWA's Yuba River Development Project, FERC Project No. 2246. Specifically, the Project facilities and features identified in the existing FERC license.
Project Area	The area within the FERC Project Boundary and the land immediately surrounding the FERC Project Boundary (i.e., within about 0.25 mile of the FERC Project Boundary) and including Project-affected reaches between facilities and downstream to the next major water controlling feature or structure.
Project Drainage Basins	Combination of the Middle Yuba River, North Yuba River, and Yuba River drainage basins.
Project Region	The area surrounding the Project in the order of a county or national forest.
Project Roads	Roads within Project boundary and constructed for Project purposes and necessary for Project operation and maintenance
Project Vicinity	The area surrounding the Project on the order of a United States Geological Survey 1:24,000 topographic quadrangle.
Project Viewshed	The area from which Project features are visible. The land base from which the Project may be seen.
Project Works	All of the infrastructure associated with the operations of the Project.
proposed Condition	The operations and management activities that YCWA proposes to undertake as conditions of the new license for the Project for protecting, enhancing or mitigating impacts to resources that could be affected by YCWA's proposed Project
proposed Project	The addition of multiple facilities to YCWA's Yuba River Development Project, FERC Project No. 2246. Specifically, the Project facilities and features identified in the Amended FLA.
PWC	personal water craft
Q	
QA/QC	quality assurance/quality control
quad	quadrangle
R	
ramping	The act of increasing or decreasing stream flows from a powerhouse, dam or diversion structure
ramping rate curve	The river flow vs. stage curve relationship at the point where ramping rate compliance is measured.
ramping rates	The rate of water discharge from a powerhouse, dam, or diversion structure, prescribed by the License or other regulatory-driven rule.
RD	Recreation Day, which equals a visit by a person to a site for recreation purposes during any portion of a 24-hour period.
REC	Sierra Foothill Research and Extension Center
reach	A stretch of stream defined for the purposes of communication, usually defined between readily identifiable endpoints (such as structures or stream confluence).
Reclamation	United States Department of the Interior, Bureau of Reclamation

Glossary (continued)

R (cont'd)	
regulated hydrology	The hydrology of Project-affected streams subsequent to construction of the Project. The hydrology of any stream that is augmented, constrained, or otherwise manipulated by upstream man-made structures.
Relicensing	The process of acquiring a new license for a Project that has an existing license from the Federal Energy Regulatory Commission.
Relicensing Contact List	List of Interested Parties that have provided to YCWA an e-mail address to which YCWA may forward information regarding the Relicensing. Also referred to as Contact List.
Relicensing Participants	Interested Parties, which includes YCWA, that routinely and actively take part (i.e., attend meetings/workshops and make filings) in the Relicensing proceedings.
relicensing proceeding	Relicensing of YCWA's Yuba River Development Project. Sometimes referred to as the Relicensing.
reservoir	The water retained by a dam. Also referred to as headwater, storage, forebay, or head pond.
reservoir drainage area	The area that drains into the reservoir.
reservoir elevation	The water surface elevation of a reservoir at a given point in time.
reservoir gross storage	Reservoir storage at maximum normal water surface elevation.
reservoir length	The distance between the two most distant points on the reservoir shore at normal maximum water surface elevation.
reservoir maximum storage capacity	The gross volume of water that can be stored in the reservoir.
reservoir NMWS elevation	Normal Maximum Water Surface - The elevation of the lowest spill crest if uncontrolled, the top of the gates for gates at the top of the dam.
reservoir storage curve	A curve that defines a reservoir's volume in acre-ft at various surface elevations.
reservoir surface area	The surface area of the reservoir at the normal maximum water surface elevation.
reservoir usable capacity	A volume measurement of the amount of water that can be stored for generation, down to a minimum level
reservoir width	The maximum distance between the two most distant points on the reservoir shore at normal maximum water surface elevation taken at a right angle to the line at reservoir length.
residence time	The period of time water remains in a reservoir.
Responsible Agency	A responsible agency is a public agency with discretionary approval authority over a portion of a project that is subject to the California Environmental Quality Act.
ResSim	United States Army Corps of Engineers - Hydrologic Engineering Center (USACE-HEC) Reservoir Simulation model, Version 3.0. Also known as HEC-ResSim.
riparian	Riparian applies to the vegetation zone and other biological resources adjacent to and hydrologically affected by neighboring riverine (lotic) and reservoir (lentic) water bodies.
RM	River Mile as measured along the river course, from downstream to upstream, often beginning at a downstream confluence with another river reach.
RMT	Yuba Accord River Management Team
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
Rosgen classification	The Rosgen classification system is a widely used method for classifying streams and rivers based on common patterns of channel formation (morphology). The patterns are preferably observed from physical measurements.
RST	rotary screw trap
RTD	resistance temperature detector
run-of-the-river	A hydro project that uses the flow of a stream with little or no reservoir capacity for storing water.
RV	recreational vehicle
RVD	Recreation Visitor Days
RWQCB	Regional Water Quality Control Board
S	
§ or §§	section or sections
salmonids	Any member of the taxonomic family Salmonidae, which includes all species of salmon, trout, char, whitefish, and grayling.
SCADA	Supervisory Control And Data Acquisition system
scenario	A collection of settings that constitutes a HEC-ResSim operation model run. Output data for a run are referenced by the scenario name.
SD1	Scoping Document 1: A document issued by the Federal Energy Regulatory Commission summarizing the relicensing process for a Project; generally issued following the first public meeting after the NOL.
SD2	Scoping Document 2: Within 45 days following the deadline for filing of comments on Scoping Document 1, the Federal Energy Regulatory Commission staff shall, if necessary, issue Scoping Document 2 to address comments received regarding Scoping Document 1.
Secchi Disc	A method of measuring surface water transparency in a reservoir.
Section 106	Refers to Section 106 of the National Historic Preservation Act.

Glossary (continued)

S (cont'd)	
Section 401 Certification	Water quality certification issued by the State Water Resource Control Board, the California agency responsible for administering Section 401 of the Clean Water Act.
Section 7 Consultation	The required formal consultation required under the federal Endangered Species Act between the Licensee and the United States Fish and Wildlife Service and/or the National Marine Fisheries Service.
SFP	State Fully Protected
SFWPA	South Feather Water and Power Agency
SHPO	California Department of Parks and Recreation, Office of Historic Preservation, State Historic Preservation Officer
SNFPA	Sierra Nevada Forest Plan Amendment
SNYLF	Sierra Nevada yellow-legged frog
Special-Status Species	Special-status species or subspecies are listed under the California Endangered Species Act, federal Endangered Species Act, resource agency, or resource trustee, as candidates for endangered or threatened status, species of special concern, sensitive species, watch list species, management indicator species, or rare species.
spill	Water that passes over a spillway or dam without being utilized for power generation.
spillway	A constructed passage for releasing surplus water from a reservoir or release water, not used for power generation, as otherwise necessary for safe project operation
spillway capacity curve	A curve that defines the magnitude of spill, in cubic feet per second, for the spillway at given reservoir elevations.
SPT	sediment pass-through
sq ft or ft ²	square foot
sq mi or mi ²	square mile
SR	State Rare. A species or subspecies listed as rare under the California Environmental Quality Act.
SRH-2D	Sediment and River Hydraulics 2 Dimension modeling program
SRMA	Sierra Resource Management Area
SRMP	Sierra Resource Management Plan
SRWP	Sacramento River Watershed Program
stage	A water surface elevation based on a local datum.
State	State of California
station use	Energy used to operate the generating facility's auxiliary equipment.
STATSGO	State Soil Geographic Database
stoplogs	Removable logs installed seasonally in reservoir spillways to temporarily increase storage capacity. Also known as "flashboards."
storage-area-elevation curve	A rating curve that defines reservoir storage and water surface area as a function of the water surface elevation.
Study Area	The geographic area covered by a specific study.
Study Plan	The aggregate of all study descriptions.
Study Proposal	A single study, as well as the aggregate of all studies performed in support of the relicensing.
su	Standard units; units of measuring PH
sub-basin	An area drained by a stream and all its tributaries that is contained within a larger basin or watershed.
SUP	Special Use Permit issued by the Forest Service
SWAMP	SWRCB's Surface Water Ambient Monitoring Program
switching center	The main control center for the development. The switching center is responsible for operation of the development's automatic, semiautomatic, and manual powerhouses.
switchyard	A facility where electricity from the electrical generator is transferred to the electric grid.
SWP	State Water Project
SWRCB	State Water Resources Control Board
synthesized hydrology	The calculated estimate of flow (not measured).
SYR	South Yuba River
SYRCL	South Yuba River Citizens League
SYWD	South Yuba Water District
T	
T&E	Threatened and Endangered species as listed by either the Federal Endangered Species Act or the California Endangered Species Act.
tailrace	Channel through which water is discharged from the powerhouse turbines.
taxa	Plural form of taxon.
taxon	A term used in animal and plant classification. One or more organisms that are classified as being members of the same group, related to each other.
TCP	Traditional Cultural Property

Glossary (continued)

T (cont'd)	
TDS	Tailwater Depression System
thalweg	The lowest elevation within the cross-section of a natural or artificial water conveyance channel
TMDL	total maximum daily load
TN	total nitrogen
TNC	The Nature Conservancy
TNF	Tahoe National Forest, part of the United States Department of Agriculture, Forest Service
TOC	total organic carbon
transformer	An electrical device which modifies the voltage and current relationship of a power source.
trash rack	A mechanism, found on a dam or intake structure, which clears the water of debris before the water passes through the structure
TSS	total suspended solids
tunnel	An underground or underwater passageway.
turbine	A machine that converts the energy of moving water into the mechanical energy of rotation. This energy is then used to turn an electrical generator or other device.
U	
U.S.	United States
U.S.C.	United States Code
UC Davis	University of California, Davis
unimpaired hydrology	Synthesized hydrology of Project-affected streams with no developments. An estimate.
Unit	A term referring to the combined turbine-generator machine.
USACE	United States Department of Defense, Army Corps of Engineers
USDA	United States Department of Agriculture
USDOC	United States Department of Commerce
USDOD	United States Department of Defense
USDOJ	United States Department of the Interior
USFWS	United States Department of the Interior, Fish and Wildlife Service
USFWS-SC	A species or subspecies of concern listed by the United States Department of the Interior, Fish and Wildlife Service
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator – The map projection upon which the UTM Coordinate System is based.
UYRSP	The Upper Yuba River Studies Program
V	
V	volts
VELB	valley elderberry longhorn beetle
VMS	A Forest Service Visual Management System
W	
W	watt
Watch List	A list prepared by an individual National Forest Land Resource Management Plan of plants and animal species that are locally rare (as opposed to declining throughout their range) and are of public concern, occur as disjunct populations, are newly described taxa, or lacking sufficient information on population size, treats, trends or distribution. These species are not on the federal special status species list.
water quality certification	Issued by the State Water Resources Control Board in California, but required by the federal Clean Water Act, Section 401 water quality certification is required for any permit or license issued by a federal agency for any activity that may result in a discharge into waters of the state to ensure that the proposed project will not violate state water quality standards.
water withdrawals	Water that is withdrawn from the reservoir, not available for energy generation, which is lost from the system. Withdrawals can be either positive or negative.
Whitewater Classification System	Class I: (Easy) Moving water with small disturbances on the surface and a few small waves. There is little to no danger to swimmers. Class II: (Novice/Beginner) Faster moving water with easily avoided rocks, holes, and waves. Danger to swimmers is still slight but care must be taken. Class III: (Intermediate) Fast moving water containing various rocks, holes, currents, and waves that require skillful maneuvering to avoid. Swimmers could be at risk and may require help. Class IV: (Advanced) Strong rapids, large waves, big holes, unpredictable currents, and dangerous obstructions requiring multiple maneuvers to get through or around. Swimmers are at risk and will require help to be rescued. Class V: (Expert) All of the characteristics of Class IV with the added danger of being longer and containing more continuous features that may not be avoided. There is serious risk to swimmers and others may be of no help. Class VI: (Unrunnable) Only a team of experts who carefully plan every aspect of this expedition would have hope of surviving these rivers and rapids.
WPT	western pond turtle
WSEL	water surface elevation
WSRA	Wild and Scenic Rivers Act

Glossary (continued)

W (cont'd)	
WUA	Weighted Usable Area
WY	water year
X	
Y	
YCWA	Yuba County Water Agency
YCWG	Yuba County Fish and Game
yd	yard
YOY	young-of-the-year
YRI	Yuba River Index
Yuba Accord	Adopted in 2008, the Yuba Accord consists of four agreements between Yuba County Water Agency and others to 1) increase Yuba County Water Agency's contribution to flows in the Lower Yuba River for fishery enhancement; 2) formalize conjunctive use practices in the Yuba County Water Agency's service area to help increase the volume of water available to increase the flows; 3) authorizes Yuba County Water Agency to sell the water, once it's downstream, to the CALFED Environmental Water Account and others; and 4) amends the YCWA and PG&E power purchase contract.
Z	