CUTLER HYDROELECTRIC PROJECT (FERC PROJECT NO. 2420)

~~DRAFT~~FINAL LICENSE APPLICATION

VOLUME I

Exhibit A, B, C, D, E, F (Public), G, H

PACIFICORP

A BERKSHIRE HATHAWAY ENERGY COMPANY

Salt Lake City, UT

~~NOVEMBER 2021~~

MARCH 2022

INITIAL STATEMENT

BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

CUTLER HYDROELECTRIC PROJECT
FERC PROJECT NO. 2420

FINAL APPLICATION FOR NEW LICENSE
FOR MAJOR PROJECT – EXISTING DAM

INITIAL STATEMENT
(Pursuant to 18 CFR § 4.51)

1. PacifiCorp ("Licensee" or PacifiCorp) applies to the Federal Energy Regulatory Commission (FERC) for a new license for the Cutler Hydroelectric Project (Project), as described in the attached exhibits. The Project is currently licensed to PacifiCorp as FERC Project No. 2420, by Order dated April 29, 1994 (67 FERC ¶ 62,082). PacifiCorp is the only entity that has, or intends to obtain and maintain, and will maintain, any proprietary rights or interest to construct, operate, or maintain the Project.

2. The location of the Project is:

State:	Utah
Counties:	Box Elder and Cache
City or Town:	Collinston; Logan
Stream or other body of water:	Bear River

3. The exact name and business address of the applicant are:

PacifiCorp
825 NE Multnomah Street, Suite 1800
Portland, OR 97232
Telephone: (503) 813-6657

The exact name and business address of each person authorized to act as agent for the applicant in this application are:

PacifiCorp
Eve Davies, Cutler Relicensing Project Manager
1407 West North Temple, ~~Room~~Suite 210
Salt Lake City, ~~Utah~~UT 84116
Phone: (801) 220-2245
E-mail: Eve.Davies@pacificorp.com

PacifiCorp
Todd Olson, Director of Compliance
825 NE Multnomah Street, Suite 1800
Portland, OR 97232
Phone: (503) 813-6657
E-mail: Todd.Olson@pacificorp.com

It is requested that all copies of all correspondence pertaining to this application be provided to:

Eve Davies, Cutler Relicensing Project Manager
PacifiCorp
1407 West North Temple, ~~Room~~Suite 210
Salt Lake City, ~~Utah~~UT 84116
(801) 220-2245

4. PacifiCorp is a public utility corporation incorporated in the State of Oregon and doing business in Utah, Idaho, Wyoming, Oregon, Washington, California, and Montana and is not claiming preference under Section 7(a) of the Federal Power Act, 16 U.S. Code § 800.

5. The statutory or regulatory requirements of the State of Utah, the state in which the Project is located, which would, assuming jurisdiction and applicability, affect the Project with respect to bed and banks, and to the appropriation, diversion, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power, and in any other business necessary to accomplish the purposes of the license under the Federal Power Act are:

   a. 401 Water Quality Certification from the Utah Department of Environmental Quality to assure compliance with Section 401 of the Federal Clean Water Act.
   b. State of Utah Division of Water Rights for regulation of the water rights required to operate the Project.

6. The steps the applicant has taken, or plans to take, to comply with each of the laws cited above are:

   a. The applicant will apply for 401 Water Quality Certification per 18 CFR § 5.23(b).
   b. PacifiCorp will maintain its water rights as shown below for 1,460 cubic feet per second (cfs) to operate the Project and to be used for power generation.

WATER RIGHT NUMBER	FLOW (CFS)	PRIORITY	TYPE OF RIGHT
29-1855 UT	270	12/1/1903	Decreed
29-2146 UT	135	12/1/1906	Decreed

WATER RIGHT NUMBER	FLOW (CFS)	PRIORITY	TYPE OF RIGHT
29-2147 UT	135	12/1/1908	Decreed
29-2148 UT	500	12/1/1912	Decreed
29-4364 UT	420	4/3/2008	Certificate

~~WATER RIGHT~~	~~PRIORITY~~	~~FLOW/VOLUME~~
~~13-976 ID 29-1855 UT~~	~~1903~~	~~270 cfs~~
~~13-977 ID 29-2146 UT~~	~~1906~~	~~135 cfs~~
~~13-978 ID 29-2147 UT~~	~~1908~~	~~135 cfs~~
~~13-979 ID 29-2148 UT~~	~~1912~~	~~500 cfs~~
~~29-4364~~	~~2007~~	~~420 cfs~~

c. PacifiCorp will maintain its 1923 water right (29-1506; Certificate) for 2,500 cubic feet per second (cfs) for storage.

7. All existing Project facilities are owned by:

   PacifiCorp
   825 NE Multnomah Street, Suite 1800
   Portland, OR 97232

8. PacifiCorp possesses all proprietary rights necessary to construct, operate, or maintain the Project.

9. The name and mailing addresses of the counties in which any part of the Project and any Federal facilities that would be used by the Project are located as outlined in 18 CFR § 4.32(a)(2)(i):

   Box Elder County
   1 South Main Street
   Brigham City, ~~Utah~~UT 84302

   Cache County
   179 N Main Street & 199 N Main Street
   Logan, ~~Utah~~UT 84321

   There are no Federal facilities that would be used by the Project.

10. The name and mailing address of every city, town, or similar local political subdivision in which any part of the Project and any Federal facilities that would be used by the Project are located as outlined in 18 CFR § 4.32(a)(2)(ii)(A):

    There are no cities or towns in which any part of the Project is located, and ~~there are no federal~~which contain any Federal facilities used by the Project~~.~~ (there are no Federal facilities at the Project). There are, however, several smaller unincorporated communities located either adjacent to, or within, the Project.

These include: Wheelon, Cache Junction, Petersboro, Newton, Benson, Mendon, and College Ward. Direct contact information for these places is not publicly available. As of the 2020 Census, Newton, Petersboro, and Mendon were classified as census designated places (CDP).

11. The name and mailing address of every city, town, or similar local political subdivision that has a population of 5,000 or more people and is located within 15 miles of the Project dam as outlined in 18 CFR § 4.32(a)(2)(ii)(B):

Hyde Park City
113 East Center
Hyde Park, ~~Utah~~UT 84318
(435) 563-6507
cityoffice@hydeparkcity.org

City of Tremonton
102 S. Tremont Street
Tremonton, ~~Utah~~UT 84337
(435) 527-9500
tremonton@tremontoncity.com

City of Providence
164 North Gateway Drive
Providence, ~~Utah~~UT 84332
(435) 752-9441
providencecityutah@gmail.com

City of Logan
290 North 100 West
Logan, ~~Utah~~UT 84321
(435) 716-9002
Holly.daines@loganutah.org

City of North Logan
2076 N 1200 E
North Logan, ~~Utah~~UT 84341
(435) 752-1310
receptionist@northlogancity.org

Smithfield City
96 South Main
Smithfield, ~~Utah~~UT 84335
(435) 563-6226
info@smithfieldcity.org

12. The name and mailing address of each irrigation district, drainage district, or similar special purpose political subdivisions in which any part of the Project is located or affected as outlined in 18 CFR § 4.32(a)(2)(iii)(A) and (B):

Bear River Water Conservancy District
~~Voneene Jorgenson,~~Carl Mackley, P.E.,
General Manager
102 W Forrest Street
Brigham City, ~~Utah~~UT 84302
~~voneenej@brwcd.com~~
carlm@brwcd.com

Cache Water Conservancy District
Nathan Daugs, Executive Director
199 Main Street
Logan, ~~Utah~~UT 84321
(435) 999-0051
ndaugs@cachewaterdistrict.com

West Cache Irrigation
Edward Cottle, Secretary
1207 S 400 E
Trenton, ~~Utah~~UT 84338

Logan Cow Pasture Water Co.
Katy Fuller, Registered Agent
4132 W 2600 N
Benson, ~~Utah~~UT 84335
logancowpasturewaterco@gmail.com

Bear River Canal Company
Trevor Nielson, General Manager
275 N 1600 E
Tremonton, ~~Utah~~UT 84337
trevor@brcanal.com

Benson Bear Lake Irrigation Company
4705 West 3800 North
Benson, ~~Utah~~UT 84301

13. There are no other political subdivisions in the general area of the project that the Applicant has reason to believe would likely be interested in or affected by the Application as outlined in 18 CFR § 4.32(a)(2)(iv).

14. The name and mailing addresses of each Federally recognized Native American tribe potentially affected by the Project as outlined in 18 CFR § 4.32(a)(2)(v):

Confederated Tribes of Goshute
~~Chairperson~~ Rupert Steele, Chairperson
HC 61 Box 6104
195 Tribal Center Road
Ibapah, ~~Utah~~UT 84043
~~(435) 234-1138~~
rupert.steele@ctgr.us

Navajo Nation
President Jonathan Nez
100 Parkway
~~P.O.~~PO Box 7440
Window Rock, ~~Arizona~~AZ 86515
(928) 871-7000
~~jonathannez@navajo-nsn.gov~~
jonathannez@navajo-nsn.gov

Northwestern Band of Shoshone Nation
Chairperson ~~Darren Parry~~Dennis Alex
~~Brigham~~Ogden Tribal Office
2575 Commerce Way
Ogden, UT 84401
~~707 North Main Street~~
~~Brigham City, Utah 84302~~
(435) 734-2286
~~dparrty@arrowpoint.us~~
Banner02@gmail.com

Paiute Indian Tribe of Utah
Chairperson Corrina Bow
440 N. Paiute Drive
Cedar City, ~~Utah~~UT 84270
(435) 586-1112
corrina_bow@yahoo.com

Skull Valley Band of Goshute Indians
Chairperson Candace Bear
407 Skull Valley Road
Skull Valley, ~~Utah~~UT 84029
(435) 831-4079
candanceb@svgoshutes.com

San Juan Southern Paiute Tribe
Vice President Candelora Lehi
~~P.O.~~PO Box 2950
Tuba City, ~~Arizona~~AZ 86045
(928) 283-4762
~~c.lehi@sanjuanpaiute-nsn.gov~~
c.lehi@sanjuanpaiute-nsn.gov

Shoshone-Bannock Tribe
Chairman ~~Nathan Small~~ Devon Boyer
~~P.O.~~PO Box 306
Fort Hall, ~~Idaho~~ID 83203
208-478-3700
~~publicaffairs@sbtribes.com~~
dboyer@sbtribes.com

Ute Indian Tribe
~~Chairman Luke Duncan~~
Betsy Chapoose
Uintah and Ouray Reservation
~~P.O.~~PO Box 190
Fort Duchesne, ~~Utah~~UT 84026
(435) 722-5141
~~luked@utetribe.com~~
betsyc@utetribe.com

White Mesa Band of the Ute Mountain Ute
Council Representative ~~Elayne Cantsee~~
Malcolm Lehi
Administration Division
~~P.O.~~PO Box 7096
White Mesa, ~~Utah~~UT 84511
~~(970) 564-5602~~
~~ecantsee@utemountain.org~~
(435) 678-3397
malcolm.lehi@utemountain.org

15. PacifiCorp will not seek benefits under Section 210 of PURPA as outlined in 18 CFR § 4.32(c)(1) and 18 CFR § 4.38(b)(2)(vi).

SUBSCRIPTION

~~*[To be executed for Final License Application]*~~

This Final License Application ~~for New License~~ for the Cutler Hydroelectric Project, FERC Project No. 2420, is executed in the State of ~~Oregon~~Utah, County of ~~Multnomah~~Salt Lake, by ~~Beth Bendickson~~Eve Davies of PacifiCorp, ~~825 Multnomah Street~~1407 West North Temple, Suite ~~1800, Portland, Oregon, 97232~~210, Salt Lake City, Utah 84116, who, being duly sworn, deposes and says that the contents of this application are true to the best of ~~t~~hei~~r~~ knowledge or belief and that ~~they are~~she is authorized to execute this application on behalf of PacifiCorp. The undersigned has signed this application ~~on~~ this _28th_ day of March 2022.

PACIFICORP ~~OF OREGON~~

By: _____

~~Beth~~Bendickson Eve Davies, Cutler Relicensing ~~Senior~~ Project ~~Coordinator~~Manager
PacifiCorp

~~VERIFICATION~~

~~Subscribed and sworn to before me, a Notary Public of the State of Oregon, this ____ day of _____, 2022.~~

~~_____~~
~~(Notary Public)~~

~~My Commission expires _____.~~

~~SEAL~~

CERTIFICATE OF SERVICE

I hereby certify that on this ____ day of March 2022, I have served PacifiCorp's *Final License Application (Transmittal Letter only)* for the Cutler Hydroelectric Project (FERC Project No. 2420) via email or U.S. postal mail if no email address was available, upon each person designated on the official service list compiled by the Secretary in this proceeding.

Beth S. Bendickson
Sr. Business Administrator
PacifiCorp

EXPLANATION OF TERMS

TERM	EXPLANATION
A	
Acre	A measure of land area equal to 43,560 square feet.
Acre-feet	The amount of water it takes to cover one acre to a depth of one foot; equal to 43,560 cubic feet or 1,233.5 cubic meters.
Appurtenant Facilities	Any buildings, structures or other property which are clearly incidental to, and customarily found in connection with major facilities of public utilities and are operated and maintained for the benefit or convenience of the occupants, employees, customers, or visitors of such major facilities.
Aquatic Life	Any plants or animals that live at least part of their life cycle in water.
B	
Baseline	A set of existing environmental conditions upon which comparisons are made during the NEPA process.
Bear Lake	A natural lake and storage reservoir. Water released from Bear Lake into the Bear River is used for power generation as it passes downstream through PacifiCorp's five hydroelectric plants in Idaho and Utah.
Benthic	Associated with lake or river bottom or substrate.
Benthic Macroinvertebrates	Animals without backbones that are visible and live on, under, and around rocks and sediment on the bottoms of lakes, rivers, and streams.
Bud Phelps Wildlife Management Area	The Bud Phelps WMA, located adjacent to the Project Boundary at the south end of Cutler Reservoir, includes 150 acres of wetland, marsh, and associated habitats just south of Cutler Reservoir, managed by the Utah Division of Wildlife Resources.
Bypass Reach	A bypass reach is an area in a waterway between the initial point where water has been diverted, and the point at which water is released back into the waterway downstream of the turbines. In the case of the Cutler Project, this reach extends from approximately the flowline intake structure at the dam to discharge at the Powerhouse.
C	
Clean Water Act	The Federal Water Pollution Control Act of 1972 and subsequent amendments in 1977, 1981, and 1987 (commonly referred to as the Clean Water Act [CWA]). The CWA established a regulatory system for navigable waters in the United States, whether on public or private land. The CWA set national policy to eliminate discharge of water pollutants into navigable waters, to regulate discharge of toxic pollutants, and to prohibit discharge of pollutants from point source without permits. Most importantly, it authorized the Environmental Protection Agency (EPA) to set water quality criteria for states to use to establish water quality standards.
Commission	Federal Energy Regulatory Commission also referenced as FERC.

Critical Energy Infrastructure Information	Project-related documents related to the design and safety of dams and appurtenant facilities that are restricted from public viewing in accordance with FERC regulations (18 CFR 388.113) to protect national security and public safety.
Cubic Feet	The volume of a cube with equal sides one foot in length.
Cubic Feet per Second	A measurement of water flow representing one cubic foot of water moving past a given point in one second; equal to 0.0283 cubic meters per second and 0.646 million gallons per day (mgd).
Cultural Resources	Includes items, structures, etc. of historical, archaeological, or architectural significance.
Cutler Dam	Refers to the Cutler Dam structure; includes the dam, flowline, penstocks, surge tank, and powerhouse.
Cutler Hydroelectric Project	Federal Energy Regulatory Commission (FERC) Project No. 2420, located on the Bear River in Box Elder and Cache counties, Utah includes all the lands, waters and structures enclosed within the FERC Project Boundary.
Cutler Reservoir	Cutler Reservoir spreads out from the canyon, Cutler Dam, upstream into flat land consisting of pasture, meadows, meandering river channels, marshes, wetland, agricultural land, and forest. It is formed by the confluences of the Bear, Logan, Spring Creek, and Little Bear Rivers.
D	
Dam	A structure constructed across a water body typically used to increase the hydraulic head at hydroelectric generating units. A dam typically reduces the velocity of water in a particular river segment and increases the depth of water by forming an impoundment behind the dam. It also generally serves as a water control structure.
Differential Surge Tank	A vertical standpipe installed on large pipelines to relieve excess pressure caused by water hammer and to provide a supply of water to reduce negative pressure if a valve is suddenly opened.
Dissolved Oxygen	Perhaps the most employed measure of water quality. Low DO levels adversely affect fish and other aquatic life. The total absence of DO leads to the development of an anaerobic condition and the eventual development of odor, loss of aquatic organisms, and aesthetic problems.
Drainage Area	The land area where precipitation falls off into creeks, streams, rivers, lakes, and reservoirs. It is a land feature that can be identified by tracing a line along the highest elevation between two areas on a map, often a ridge.
Drawdown	The distance the water surface of a reservoir is lowered from a given elevation as the result of releasing water. Also the reduction in flow downstream of a dam.
E	
Eutrophic	Waters with a high concentration of nutrients, greatly fluctuating DO, and a high level of primary production.

F	
Fahrenheit	Fahrenheit is a temperature scale that uses the degree symbol °F.
Federal Energy Regulatory Commission	The governing federal agency responsible for overseeing the licensing, relicensing, and operation of non-federal hydroelectric projects in the United States.
Flow	The volume of water passing a given point over a given amount of time.
G	
Gravity Arch Dam	A specific type of dam that curves upstream in a narrowing curve and directs most of the water pressure against the canyon rock walls, providing force to compress the dam.
Gross Storage Capacity	The maximum possible volume of water impounded by a dam with zero spill; that is, with the discharge of water over the dam or spillway.
H	
Habitat	The locality or external environment in which a plant or animal normally lives and grows.
I	
Impoundment	The body of water created by a dam.
Integrated Licensing Process	The ILP is the default process by which a hydroelectric project obtains a new license to operate from the FERC.
Interested Parties	Individuals who have expressed an interest in the relicensing proceeding; similar to a stakeholder.
L	
Lessee	An individual or entity leasing property from another individual or entity.
License	FERC authorization to construct a new hydroelectric project or continue operating an existing project. A license contains the operating conditions for a typical term of 40 years.
License Application	Application for a new license that is submitted to FERC no less than two years in advance of expiration of an existing license.
Licensee	Holder of FERC project license. In the case of the Cutler Project, PacifiCorp, a subsidiary of Berkshire Hathaway Energy.
M	
Megawatt	A unit of electrical power equal to one million watts or 1,000 kW.
Megawatt-hour	A unit of electrical energy equal to 1 MW of power used for one hour.
Model Boundary	The study area for the hydraulic modeling effort included all facilities within the PacifiCorp Project Boundary, as well as 1.5 miles of the Bear River downstream of the PacifiCorp Project Boundary near the Cutler powerhouse.
N	
National Environmental Policy Act	A law passed by the U.S. Congress in 1969 to establish methods and standards for the review of development projects requiring federal action such as permitting or licensing.

Non-Governmental Organization	Local, regional, and national organizations such as conservation, sportsman's, or commerce groups.
P	
Power Factor	The ratio of actual power to apparent power. Power factor is the cosine of the phase angle difference between the current and voltage of a given phase. Unity power factor exists when voltage and current are in phase.
Powerhouse	The building that typically houses electric generating equipment.
Pre-Application Document	A document required by FERC when relicensing a project that brings together all existing, relevant, and reasonably available information about the project and its effects on resources; includes a well-defined process plan that sets the schedule for developing the license application and a list of preliminary studies and issues.
Project	All the components of a hydropower development (i.e., dam, powerhouse, transmission junctions, reservoir, rights-of-way, lands). Project: the impoundment and any associated dam, powerhouse, reservoir, intake, water conveyance facility, and any other structures, rights, lands, and waters (the complete unit of development), as well as property rights in lands and waters as necessary for construction, operation, and maintenance of a project. For the purposes of this document, Project is defined as the Cutler Hydroelectric Project (FERC Project No. 2420), located on the Bear River in Box Elder and Cache counties, Utah.
Project Area	The geographic area comprised of the lands and waters within the Project Boundary and those lands immediately adjacent to the Project Boundary. For the purposes of this document, the Project Area is the area which contains all Project features (encompassing the Project Boundary as defined below), and which extends out for the purposes of characterization and analysis from the edge of the Project Boundary plus a 0.5-mile buffer. The Pproject Aarea includes ~~9,191 acres of~~some open water, wetlands, uplands surrounding Cutler Reservoir including areas of confluence with its major tributaries.
Project Boundary	The boundary defined in the project's license issued by FERC outlining the geographic area needed for project operations and maintenance. Project Boundary: includes all structures (e.g., dams, powerplants or other structure used for generation of electricity), lands and waters included in a license or exemption. The Project Boundary must enclose only those lands necessary for operation and maintenance of the project and for other project purposes, such as recreation, shoreline control, or protection of environmental resources, as designated in the project license. Project boundaries are used to designate the geographic extent of the hydropower project that FERC determines a licensee must own or control on behalf of its licensed hydropower project. For the purposes of this document, the 9,277 acre Project Boundary is defined as all lands and waters within the existing FERC Project Boundary for the Cutler Hydroelectric Project No. 2420, as denoted on the Project's Exhibit G.

Project Vicinity	Refers to a larger geographic area near a project, such as a county; used for characterization or analysis of specific resources. For the purposes of this document, Project Vicinity is defined by resource in relevant sections of the document.
Proposed Action	For the purposes of this document, Proposed Action refers to the approval process of PacifiCorp's proposal to gain a new license for the Cutler Hydroelectric Project (FERC Project No. 2420), located on the Bear River in Box Elder and Cache counties, Utah.
R	
Relicensing	The administrative proceeding in which FERC, in consultation with other federal and state agencies, decides whether and on what terms to issue a new license for an existing hydroelectric project at the expiration of the original license.
Relicensing Participants	Individuals who actively participate in the relicensing proceedings.
Reservoir	A man-made water impoundment into which water flows and maybe stored for future use.
Resident Fish	Fish that do not migrate out to a larger body of water such as a larger river, lake, or the ocean, but instead remain in the freshwater tributary where they hatched.
Resource Agency	A federal, state, or interstate agency with responsibilities in the areas of flood control, navigation, irrigation, recreation, fish or wildlife, water resource management, cultural, or other relevant resources of the state in which a project is or will be located.
Riparian	Of, relating to, or situated or dwelling on the bank of a river or other body of water. Frequently refers to the shrub- and tree-dominated habitats that are commonly found adjacent to these bodies of water.
S	
Salt Creek Waterfowl Management Area	The management area managed by the Utah Division of Wildlife Resources (UDWR) located at the mouth of the Bear River Valley, north of the Bear River Migratory Bird Refuge, and approximately 16 miles southwest of Cutler Reservoir.
Scoping Document 1	A document prepared by FERC as part of NEPA environmental review that initially identifies issues pertinent to the FERC's review of a project. The FERC circulates the SD1 and holds a public meeting to obtain the public's comment.
Scoping Document 2	A revision of the SD1 that considers public comment on that document.
Scoping Process	The process of identifying issues, potential impacts, and reasonable alternatives associated with the operation of a hydroelectric project. "Scoping" is a process required when any federal agency is taking an action that might affect the quality of the human environment, pursuant to the National Environmental Policy Act (NEPA) of 1969. In the case of hydroelectric projects, FERC's issuance of an operating license qualifies as a federal action.

Secchi Depth	Average depth that a standard sized black and white disk disappears and reappears when viewed from the lake surface as the disk is lowered; an indicator of water clarity.
Spillway	A passage for releasing surplus water from a reservoir or canal.
Spinning Reserve	The amount of unused capacity in online energy assets which can compensate for power shortages or frequency drops within a given period of time. Traditionally, the spinning reserve is a concept for large synchronous generators.
Stakeholder	Any individual or organization (government or non-governmental) with an interest in a hydroelectric project; similar to an interested party.
Stratification	A physical process that results in the formation of distinct layers of water within a lake or reservoir (i.e., epilimnion, metalimnion, and hypolimnion) separated by temperature.
Study Plan	The aggregate of all study descriptions.
T	
Tailrace	The channel located between a hydroelectric powerhouse and the river where discharged water passing through the powerhouse turbines enters the river immediately downstream of the powerhouse.
Tailwater	The waters immediately downstream of a dam; for hydroelectric dams, also referred to as the tailrace.
Turbidity	A measure of the extent to which light passing through water is reduced due to suspended materials. Measured as NTU or FTU.
W	
Watershed	An entire drainage basin including all living and nonliving components of the basin.
Wetlands	Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the terrestrial surface or the land is covered by shallow water. Wetlands must have the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; 3) the substrate is on soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

ACRONYMS AND ABBREVIATIONS

µg/l	microgram per liter
µm	one millionth of a meter (micrometer)
1D	1 dimensional
2D	2 dimensional

A

ac	acre
ADA	Americans with Disabilities Act of 1990
Advisory Council	Advisory Council on Historic Preservation
af	acre-feet
AFO	Animal Feeding Operation
AFUDC	allowances for funds used during construction
AIS	~~A~~aquatic ~~I~~invasive ~~S~~species
Al	aluminum
ANOVA	analysis of variance
APE	Area of Potential Effects
ATV	all-terrain vehicle
AU	assessment unit
AWQMS	Ambient Water Quality Monitoring System

B

BAA	Balancing Authority Areas
BBS	Breeding Bird Survey
BHE	Berkshire Hathaway Energy
BLM	Bureau of Land Management
BMI	Benthic Macroinvertebrate Index
BMP	best management practice
BOD	Biological Oxygen Demand
BRCC	Bear River Canal Company
BRLC	Bear River Land Conservancy
BYU	Brigham Young University

C

°C	Celsius
$CaCO_3$	calcium carbonate
CAFO	Concentrated (or Confined) Animal Feeding Operation
CAISO	California Independent System Operator
CBC	Christmas Bird Count
CEC	~~C~~cation exchange capacity
CEII	Critical Energy Infrastructure Information
CESCP	Construction Erosion and Sediment Control Plan
CDP	~~C~~census designated places
cf	~~C~~cubic ~~F~~feet
CFR	Code of Federal Regulations

cfs	~~C~~cubic ~~F~~feet per ~~S~~second
cm	centimeter
COVID-19	Coronavirus Disease 2019
CRA	Cultural Resources Assessment
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act

D

DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DFFSL	Division of Forestry, Fire, and State Lands
District	Cutler Hydroelectric Power Plant Historic District
DLA	Draft License Application
DO	~~D~~dissolved ~~O~~oxygen
DSM	Demand Side Management
DTP	~~D~~dissolved ~~T~~total ~~P~~phosphorus
DTPsed	dissolved total phosphorus from water in the interstitial voids of the sediment

E

EA	Environmental Assessment
EAP	Emergency Action Plan
EC	Eligible/Contributing
eDNA	~~E~~environmental deoxyribonucleic acid
EFH	Essential Fish Habitat
EIM	Energy Imbalance Market
EPT [taxa]	Ephemeroptera, Plecoptera, and Trichoptera
ESA	Endangered Species Act
ERI	Ecosystems Research Institute

F

°F	Fahrenheit
FAA	Federal Aviation Administration
Fe	Iron
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
FPA	Federal Power Act
FOIA	Freedom of Information Act
ft/s	foot per second
FTU	Formazin Turbidity Unit

G

GIS	geographic information system
GLO	General Land Office
GPS	global positioning system

H

HCC	Hydro Control Center
hp	horsepower
HPMP	Historic Properties Management Plan

I

IBA	Important Bird Area
ID	identification
IF	isolated features
ILP	Integrated Licensing Process
ILS	intensive-level survey
IO	isolated occurrences
IPaC	Information Planning and Conservation
IRP	integrated resource planning
ISR	Initial Study Report

J

JHU	Johns Hopkins University

K

K	thousand
kg	kilogram
kHz	kilohertz
kv	kilovolt(s)
kW	kilowatt(s)
Kwhs	kilowatt-hour(s)

L

LBM	Little Bear Marsh
LiDAR	Light Detection and Ranging
LRM	Logan River Marsh

M

MBTA	Migratory Bird Treaty Act
mg/kg	milligram per kilogram
mgd	million gallons per day
mg/L	milligrams per liter
mL	milliliter
mm	millimeter
msl	~~M~~mean ~~S~~sea ~~L~~level
MVA	~~M~~megavolt-ampere
MW	~~M~~megawatt
MWh	~~M~~megawatt-hour

Mya	~~Millions of~~million years ago

N

N/A	not applicable
NAIP	National Agricultural Imagery Program
NAS	~~N~~non-indigenous ~~A~~aquatic ~~S~~species
NC	non-contributing
NEPA	National Environmental Policy Act
NERC	North American Reliability Council
NGO	Non-Governmental Organization
NGVD 29	National Geodetic Vertical Datum of 1929
NH3	~~A~~ammonia
NHPA	National Historic Preservation Act
NLCD	National Land Cover Database
NMFS	National Marine Fisheries Service
NO_2	~~N~~nitrite
NO_3	~~N~~nitrate
NOAA Fisheries	National Marine Fisheries Service (also NMFS)
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTS	National Trails System Act
NTU	~~N~~nephelometric ~~T~~turbidity ~~U~~unit
NWI	National Wetland Inventory
NWPPP	Northwest Power and Conservation Council

O

~~OCMP~~	~~Operations Compliance Management Plan~~
OHV	off-highway vehicle
OHWL	Ordinary High-Water Line
OPMC	Operations Compliance Monitoring Plan
OP	orthophosphate

P

P	Phosphorus
PACE	PacifiCorp East
PAD	Preliminary Application Document
PACW	PacifiCorp West
PCB	polychlorinated biphenyl
PM&E	Protection, Mitigation, and Enhancement
PF	Power Factor
ppb	parts per billion
Project	Cutler Hydroelectric Project (FERC No. 2420)

psi	pounds per square inch
PSP	Proposed Study Plan

Q

QA/QC	Quality Assurance/Quality Control
QR	Quick Response Code Scan

R

RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
RLS	Reconnaissance-level Survey
RMP	Resource Management Plan
RR	railroad
RSP	Revised Study Plan
RV	recreational vehicle

S

SCM	Spring Creek Marsh
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SD1	Scoping Document 1
SD2	Scoping Document 2
SDM	Sewage Discharge Marsh
SHPO	State Historic Preservation Office
SPD	Study Plan Determination
SRP	soluble reactive phosphorus
SDR	Supporting Design Report
SMS	Scenery Management System
STEP	Sustainable Transportation and Energy Plan
STID	Supporting Technical Information Document
SWCA	SWCA Environmental Consultants

T

T&E	threatened and endangered
TCPs	Traditional Cultural Properties
TDP	total dissolved phosphorus
TDS	Total Dissolved Solids
TIN	triangular irregular network
TIV	turbine isolation valve
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TP	Total phosphorus
TPsed	total phosphorus bound to bed sediments
TSS	Total Suspended Solids

U

U.P.	Union Pacific

UDEQ	Utah Division of Environmental Quality
UDOT	Utah Department of Transportation
UDSH	Utah Division of State History
UDWR	Utah Division of Wildlife Resources
UDWRi	Utah Division of Water Rights
UDWQ	Utah Division of Water Quality (a division within UDEQ)
UHSF	Utah Historic Site Form
UP&L	Utah Power and Light
URN	Utah Reference Network
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USR	Updated Study Report
USU	Utah State University
USUAL	Utah State University Analytical Lab

V

V	velocity
VEP	Vegetation Enhancement Program

W

WECC	Western Electricity Coordinating Council
WMA	Wildlife Management Area
WQC	Water Quality Certification
WSE	Water Surface Elevation
WSoC	Wildlife Species of Concern
WWTP	Wastewater Treatment Plant