



rPlus Hydro, LLLP
201 S Main St, Suite 2100
Salt Lake City, UT 84111

April 21, 2022

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Preliminary Permit Application for the Hurricane Cliffs Pumped Storage Project

Dear Ms. Bose,

Please find attached an application for preliminary permit for the Hurricane Cliffs Pumped Storage Project. If you have any questions or need additional information, please contact me at (208) 246-9925 or e-mail at mshapiro@rplushydro.com.

Sincerely,

A handwritten signature in blue ink that reads "Matt Shapiro".

Matthew Shapiro
Chief Executive Officer
rPlus Hydro, LLLP

Preliminary Permit Application
for the
Hurricane Cliffs Pumped Storage Project

April 21, 2022

VERIFICATION STATEMENT

This application for a preliminary permit is executed in the

State of Idaho
County of Ada

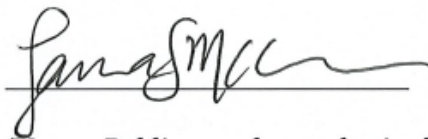
by: Matthew Shapiro
rPlus Hydro, LLLP
201 S. Main St., Ste. 2100
Salt Lake City, UT 84111

being duly sworn, depose(s) and say(s) that the contents of this Preliminary Permit Application are true to the best of (his or her) knowledge or belief. The undersigned Applicant has signed the application this 21st day of April, 2022.

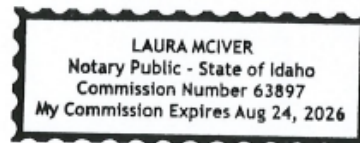
Applicant

By: 

Subscribed and sworn to before me, a Notary Public of the State of Idaho, this 21st day of April, 2022.



(Notary Public, or other authorized official)



**PRELIMINARY PERMIT APPLICATION
FOR THE
HURRICANE CLIFFS PUMPED STORAGE PROJECT**

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§4.81 (a) Initial Statement

(1) Hurricane Cliffs PSH, LLC, a Utah limited liability company, applies to the Federal Energy Regulatory Commission (“FERC”) for a preliminary permit for the proposed Hurricane Cliffs Pumped Storage Project (“Project”), as described in the attached exhibits. This application is made in order that the applicant may secure and maintain priority of application for a license for this project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.

(2) The location of the proposed project is:

State or Territory:	Utah
County:	Washington
Township or nearby town:	Hurricane
Stream or other body of water:	None – Closed-Loop

(3) The exact name, business address, and telephone number of the Applicant is:

Hurricane Cliffs PSH, LLC
201 S. Main St., Ste. 2100
Salt Lake City, UT 84111
Phone: (208) 246-9925

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

Agent

Matthew Shapiro, CEO
rPlus Hydro, LLLP
201 S. Main St., Ste. 2100
Salt Lake City, UT 84111
Phone: (208) 246-9925
E-mail: mshapiro@rplushydro.com

(4) Hurricane Cliffs PSH, LLC is a domestic corporation and is not claiming municipal preference under section 7(a) of the Federal Power Act.

(5) The proposed term of the requested permit is 48 months.

(6) There are no existing dams associated with the proposed Project.

§4.32. IDENTIFICATION

(1) For a preliminary permit or license, identify every person, citizen, association of citizens, domestic corporation, municipality, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project;

Hurricane Cliffs PSH, LLC
201 S. Main St., Ste. 2100
Salt Lake City, UT 84111

(2)(i) Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located:

The Project would be located in Washington County, Utah:

Washington County Clerk/Auditor
197 E. Tabernacle St.
St. George, UT 84770

No Federal facilities will be used by the Project.

(2)(ii) Every city, town, or similar local political subdivision:

(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located:

The Project would not be located within the boundaries of any city, town, or similar local subdivision.

(B) Cities, towns, or similar subdivision (5,000 people or more) within a 15-mile radius of the project dam:

City of St. George
175 East 200 North
St. George, UT 84770

City of Hurricane
147 North 870 W
Hurricane, UT 84737

(iii) Every irrigation district, drainage district, or similar special purpose political subdivision:

(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located; or

(B) That owns, operates, maintains, or uses any project facilities or any Federal facilities that would be used by the project:

Washington County Water Conservancy District
533 East Waterworks Drive
St. George, UT 84770

There are no known special purpose political subdivisions that own, operate, maintain, or use any Federal facilities that would be used by the project.

(iv) Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in, or affected by, the application:

None known.

(v) All Indian tribes that may be affected by the project.

Paiute Indian Tribe of Utah Tribal Council
440 N. Paiute Drive
Cedar City, UT 84720-2613

§ 4.81 (b) Exhibits

EXHIBIT 1: DESCRIPTION OF THE PROPOSED PROJECT

The project will be a closed-loop pumped storage hydropower facility comprised of two new artificial reservoirs joined by underground and buried conduits, a pit-style powerhouse, and associated generation, pumping, and transmission equipment. Maximum gross head would be 1,230 feet, generating and pumping capacity would be 500 megawatts (MW), and annual gross energy production is estimated at 876,000 megawatt-hours (MWh). Details on project features are provided below.

Dams

	Height	Length at Crest	Type
Upper Reservoir – Primary Dam Lat. 37.050 Long. -113.281	65 ft	2,480 ft	Earthen
Upper Reservoir – Secondary Dam Lat. 37.060 Long. -113.289	35	680 ft	Earthen
Lower Reservoir Dam Lat. 37.054 Long. -113.313	85 ft	4,500 ft	Earthen

Reservoirs

	MSL (ft)	Volume (AF)	Surface Area (ac)
Upper Reservoir Lat. 37.055 Long. -113.282	4,720	3,920	200
Lower Reservoir Lat. 37.057 Long. -113.312	3,550	4,200	125

Primary Conduits

	Length	Diameter	Lining
Low-Pressure Tunnel	1,500 ft	20 ft	Concrete-lined
Vertical Shaft	570 ft	20 ft	Concrete-lined
High Pressure Tunnel	1,440 ft	20 ft	Concrete-lined & steel-lined
Buried Headrace Pipes (2)	600	12 ft (ea)	Steel
Tailrace Tunnel or Channel	2,700 ft	20 ft	Concrete-lined

Powerhouse and Equipment

The powerhouse complex would consist of (a) three 85-foot diameter shafts, each 250 feet deep, each housing a 166.6 MW reversible pump-turbine unit, and (b) a surface powerhouse building. The shafts would be excavated from rock and include steel and concrete formwork. Dimensions of the surface structure are tentatively 300’ length, 100’ width, and 50’ height, and the building would be constructed of concrete and metal formwork. The project switchyard would be adjacent to the powerhouse. This complex would be centered at tentative coordinates of 37.059, -113.302.

Transmission Line / Interconnection

The tentative point of interconnection for the project would be PacifiCorp’s Purgatory Flat substation, which would be accessed via a new 345 kV line. Several alternative transmission line routes are tentatively identified, each requiring a right-of-way of approximately 160 feet. Alternative routes are divided into two segments, each with two alternatives: Segment 1, Alt A and Alt B and Segment 2, Alt A and Alt B. Combinations, along with lengths, are shown in the table below.

Transmission Route Alternative Combinations	Total Length
Segment 1 Alt A + Segment 2 Alt A	13.1 mi
Segment 1 Alt A + Segment 2 Alt B	12.2 mi
Segment 1 Alt B + Segment 2 Alt A	13.6 mi
Segment 1 Alt B + Segment 2 Alt B	12.3 mi

Water Sourcing

Initial fill and evaporation make-up water for the Project would be acquired from existing water rights holders. The exact point(s) of diversion for delivery of water to the Project would be identified during the study phase. Measures for minimizing evaporation and seepage losses, including covering one or both reservoirs, will be considered during the study phase.

Operation

The project will be operated to provide firm capacity to the regional power grid and to support the integration of new renewable resources interconnected currently and in the future. These resources—predominantly photovoltaic solar energy and wind energy—are emissions-free and increase energy security but are variable and intermittent in nature. The Project will use the dynamic capabilities of pumped storage to aid in the efficient integration of solar and wind resources from both an operational and economic standpoint.

Federal Lands

The majority of the core project area would occupy land managed by the BLM. The legal descriptions for all BLM lands within the proposed preliminary permit study boundary are given below. The BLM district and field offices involved are:

Color Country District Office
 Department of the Interior
 Bureau of Land Management
 176 East D.L. Sargent Drive
 Cedar City, UT 84721

St. George Field Office
 Department of the Interior
 Bureau of Land Management
 345 East Riverside Drive
 St. George, UT 84790

T42S R13W

Sec. 31

NE1/4 NW1/4
NW1/4 NE1/4
SE1/4 NW1/4
SW1/4 NE1/4
NW1/4 SE1/4
NE1/4 SE1/4
SE1/4 SE1/4

T42S R14W

Sec. 3

L27
L28

Sec. 9

NW1/4 SE1/4
NE1/4 SE1/4
SW1/4 SE1/4

Sec. 10

L22

Sec. 21

NW1/4 SE1/4
SW1/4 SE1/4
SE1/4 SE1/4

Sec. 26

NW1/4 NW1/4
SW1/4 NW1/4

Sec. 27

NW1/4 NW1/4
NE1/4 NW1/4
NW1/4 NE1/4
NE1/4 NE1/4

Sec. 28

NE1/4 NE1/4

T43S R13W

Sec. 4

NE1/4 NE1/4
NW1/4 NE1/4
SE1/4 NE1/4

Sec. 5

NE1/4 NE1/4
NW1/4 NE1/4
NE1/4 NW1/4
NW1/4 NW1/4
SW1/4 NW1/4
SE1/4 NW1/4
NE1/4 SW1/4
SE1/4 SW1/4
SW1/4 SE1/4

Sec. 8

NW1/4 NE1/4
SW1/4 NE1/4
SE1/4 NE1/4
NW1/4 SE1/4
NE1/4 SE1/4
SE1/4 SE1/4

Sec. 9

NE1/4 NE1/4
SE1/4 NE1/4
SE1/4 (ALL)

Sec. 10

NW1/4 NW1/4
SW1/4 NW1/4
SE1/4 NW1/4
SW1/4 NE1/4
SE1/4 NE1/4
SW1/4 (All)
NW1/4 SE1/4
NE1/4 SE1/4

Sec. 11

SW1/4 NW1/4

SE1/4 NW1/4

SW1/4 NE1/4

SW1/4 (All)

SE1/4 (All)

Sec. 14

NE1/4 NW1/4

SE1/4 NW1/4

NE1/4 (All)

NE1/4 SW1/4

NW1/4 SE1/4

NE1/4 SE1/4

Sec. 15

NW1/4 NW1/4

Sec. 17

NE1/4 NE1/4

The BLM lands described here are also indicated in Exhibit 4.

§4.81 (c) EXHIBIT 2: DESCRIPTION OF STUDIES**(1) General****(i) Study Plan**

The applicant plans to engage in the following studies in order to design the technical aspects of the project and to confirm its economic and environmental viability:

- Project land surveys
- Environmental impact studies
- Cultural resource studies
- Water quality studies
- Water rights studies
- Engineering studies
- Study on the energy market for the project
- Transmission interconnection studies
- Determination of equipment configuration and sizing
- Cost estimates

Additional studies may be required as the need arises.

(ii) New Roads

No new roads will be needed for the purpose of conducting the studies described in this exhibit.

(2) Work Plan for New Dam Construction**(i) Description of field studies, tests, and other land disturbing activities**

Geotechnical review during the preliminary permit phase may include desktop review, surface inspection, test pits, and borehole investigations. The applicant will use existing roads located within the project boundary to minimize or eliminate the potential for any land disturbing activities.

(ii) Studies Schedule

Work Item	Schedule	
	Month Beginning	Month Ending
Engineering		
Conceptual refinement and evaluation of alternatives	0	48
Initial scoping and consultation	0	8
Geological reconnaissance	2	6
Environmental		
Agency consultation	0	48
Cultural resource review	0	12
Environmental resource review	0	12
Prepare Pre-Application Document	8	14
Prepare draft application	24	36

Other		
Land & ROW	0	48
Water rights & sourcing studies	0	48
Transmission interconnection planning	6	36
Cost estimating, economic feasibility, and financial planning investigations	6	48
Power sales marketing	12	48
Additional stage consultation and documentation	20	48

This schedule may be adjusted and supplemented depending on need and contingencies that may develop as studies proceed.

(3) Request for Waiver

It is anticipated that preliminary field studies, tests, and other activities to be conducted under the permit would not adversely affect cultural resources or endangered species and would cause only minor alterations or disturbances of lands and waters, and that any land altered or disturbed would be adequately restored. Applicant does not propose or plan to undertake any geotechnical study that entails significant or permanent disturbance of land or habitat during the course of the preliminary permit, and any such investigation would not include any new road construction or improvement. The applicant therefore requests waiver of the full requirements of 18 CFR § 4.81 (c)(2).

(4) Statement of Costs and Financing

i. Estimated cost of studies

The estimated cost of carrying out and preparing the studies, investigations, tests, surveys, maps, plans and specifications described in this application is estimated to be between \$1.0 and \$1.5 million.

ii. Expected sources of financing

The expected sources of financing to conduct the studies described in this application are private investors and regional partners.

§4.81 (d) EXHIBIT 3: PROJECT MAPS

Notes:

1. No areas within the study boundary are designated as wilderness area or wilderness study area, or recommended for designation as wilderness areas.
2. No areas within the study boundary are included in or have been designated for study for inclusion in the National Wild and Scenic Rivers System

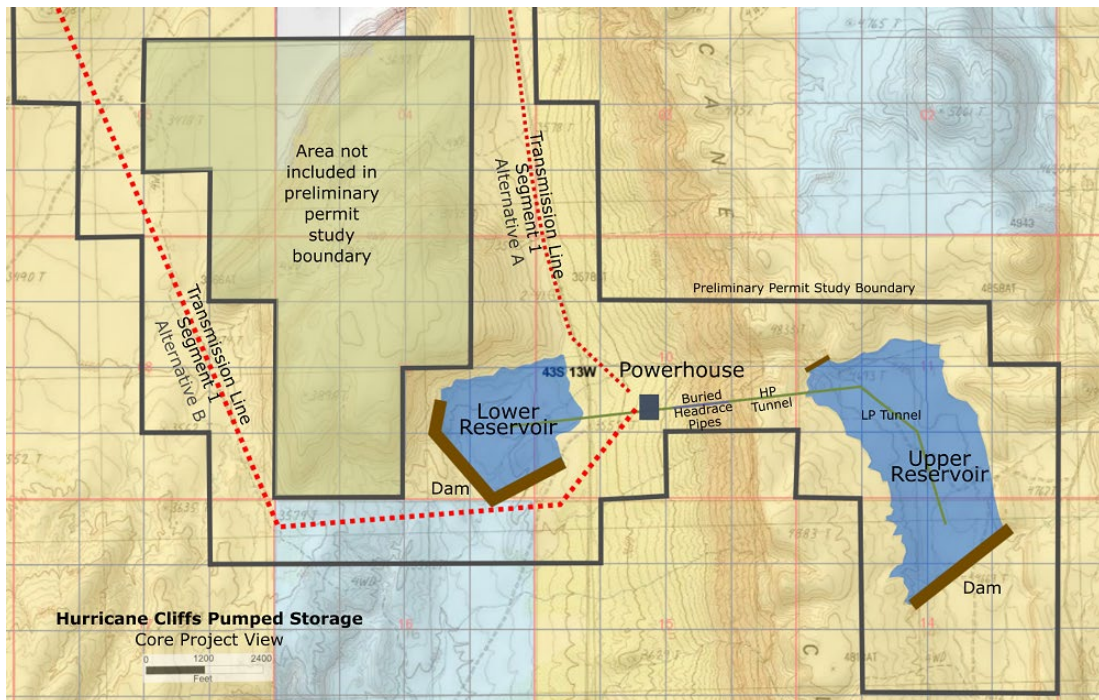
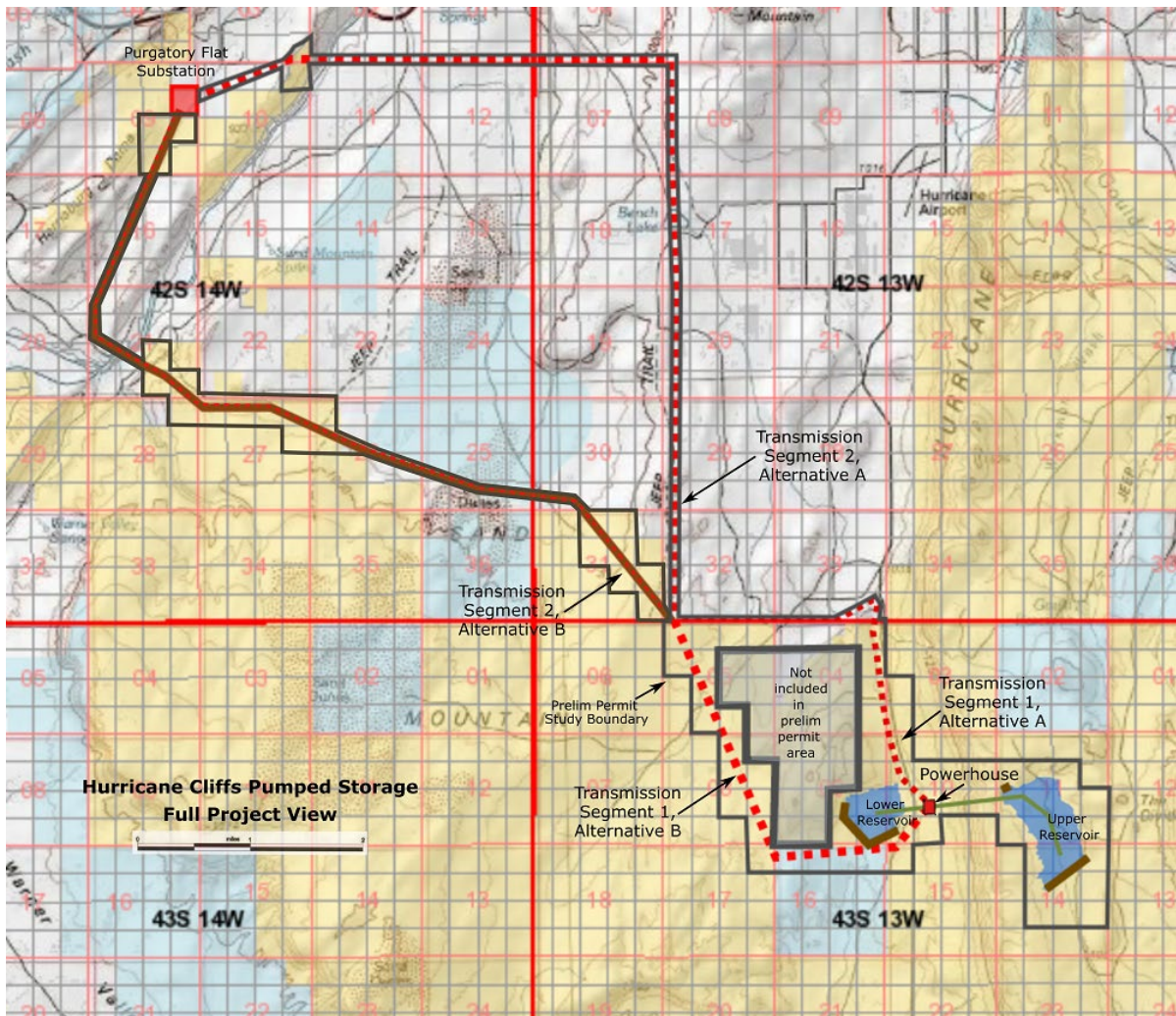


Exhibit 4: Section 4.81(b)(5) Federal Lands

Form FERC-587

OMB No. 1902-0145
(Expires 10/31/2018)

**LAND DESCRIPTION
Public Land States
(Rectangular Survey System Lands)**

1. STATE Utah 2. FERC PROJECT NO. _____

3. TOWNSHIP T42S RANGE R13W MERIDIAN Salt Lake

4. Check one: License Preliminary Permit
Check one: Pending Issued

If preliminary permit is issued, give expiration date: _____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31 BLM Exhibit 3	32	33	34	35	36

6. contact's name Matthew Shapiro
telephone no. (208) 246-9925
Date submitted April 21, 2022

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

Form FERC-587

OMB No. 1902-0145
(Expires 10/31/2018)

**LAND DESCRIPTION
Public Land States
(Rectangular Survey System Lands)**

1. STATE Utah 2. FERC PROJECT NO. _____
3. TOWNSHIP T42S RANGE R14W MERIDIAN Salt Lake

4. Check one: License Preliminary Permit Check one: Pending Issued

If preliminary permit is issued, give expiration date: _____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	5	4	3 BLM Exhibit 3	2	1
7	8	9 BLM Exhibit 3	10 BLM Exhibit 3	11	12
18	17	16	15	14	13
19	20	21 BLM Exhibit 3	22	23	24
30	29	28 BLM Exhibit 3	27 BLM Exhibit 3	26 BLM Exhibit 3	25
31	32	33	34	35	36

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Form FERC-587

OMB No. 1902-0145
(Expires 10/31/2018)

**LAND DESCRIPTION
Public Land States
(Rectangular Survey System Lands)**

1. STATE Utah 2. FERC PROJECT NO. _____
3. TOWNSHIP T43S RANGE R13W MERIDIAN Salt Lake

4. Check one: License Preliminary Permit Check one: Pending Issued

If preliminary permit is issued, give expiration date: _____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	5 BLM Exhibit 3	4 BLM Exhibit 3	3	2	1
7	8 BLM Exhibit 3	9 BLM Exhibit 3	10 BLM Exhibit 3	11 BLM Exhibit 3	12
18	17 BLM Exhibit 3	16	15 BLM Exhibit 3	14 BLM Exhibit 3	13
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