

MEMORANDUM

Date: August 18, 2015
To: Water Right File 63-33329
From: Michele Edl
Re: licensing review

Applicant

Boise Project Board of Control is the permit holder however another entity (either Riverside Investments, LLC, or Riverside Inc.) is responsible for operation of the hydroelectric powerplant. Available Canyon County taxlot information shows that the place-of-use is within Boise Project Board of Control property in Canyon County but the point-of-diversion is on Bureau of Reclamation property in Ada County.

Source and Point-of-Diversion

The source of water is the Boise River. The POD recommended by the examiner is where the New York Canal diverts from Boise River at the Diversion Dam. The Bureau of Reclamation's Diversion Dam is located at approximately mile 59 on the Boise River. At my request, Danielle Favreau (GIS analyst with IDWR's state office) provided a trace of the path from the diversion to the place-of-use. (See the attached ArcMap printout).

Many other water rights, including some for power use, share the POD. I created the point-of-diversion shape based on aerial photography and found that existing Spatial Data Point #365674 was the best representation of the POD.

From queries of the database, I found that the government lots for Diversion Dam and the POD have recently been renumbered. A 2013 dependent resurvey of Township 2 North, Range 3 East, shows the POD in government lot 17, which is the address I use for the license. Available GIS data in ArcMap is based on a 2001 dependent resurvey and shows this POD in government lot 13. And recent SRBA partial decrees show this same POD in government lot 9, which appears to be the address from the original 1910 survey. Comparing the 1910, 2001 and 2013 BLM's Government Land Office maps confirms these three different government lots represent the same location.

The PLSS address of the POD now includes a government lot number. Adding a government lot is considered a clarification so an amendment of the permit is not required.

Water Use

The Proof of Beneficial Use statement was submitted to Western Region office on May 30, 2013, three months prior to the due date. On September 17, 2012, a certified water right's examiner confirmed the existence of the project and measured the flow of water exiting the powerhouse. The examiner measured a total of 90 cfs discharging into the two receiving canals. However, his report was silent about the turbine and its capacity to utilize the flowrate that he measured. Lacking information about the turbine's hydraulic capacity, it was not clear how much water the Arena hydropower project could beneficially use.

A photo of the generator was attached to the Beneficial Use Field Report but the examiner did not record the instantaneous kW generated at the time of the exam, nor did he provide generation data from the development period of the permit. The examiner did not confirm beneficial use of water for power generation.

There is no bypass flow requirement on the permit but the historic flume now acts as a channel for bypassing water around the powerhouse. The examiner stated that less than 1 cfs was flowing in the

bypass flume at the time of his exam but the bypassed water does not appear to have been excluded from the flowrate calculations.

The Beneficial Use Field Report is altogether silent about the volume for the license.

Supplemental Information

On June 24, 2015, I visited the Arena project in conjunction with FERC's scheduled triennial inspection. I found that the rated capacity of the turbine, as seen on the turbine nameplate, is 2.26 m³/s (~80 cfs). During my site visit, the project was utilizing approximately 82 cfs (including the bypassed flow). It is not unusual for a reaction turbine to be capable of utilizing 105% of the nameplate capacity which in this case would be approximately 84 cfs.

During my site visit, the project was generating approximately 362 kW. (See attached photos of the instrument panel gauges.)

To confirm the quantities of beneficial use which had occurred during the development period of the permit, I requested additional information from the operators, the permit holder and their attorney, Mr. Al Barker. The data was provided to me electronically on July 31, 2015 and later by traditional and confirmed that power was generated during the development period of the permit. The data also confirms that the project is capable of beneficially using more rate than this permit authorized.

Operation strategy

No storage for power use is authorized by the permit. The stilling pool at the project's headworks holds less than one days worth of water. The project is operated in run-of-river mode.

Season-of-Use

The permit authorized 3/15-10/31 as the SOU. This is not the season-of-use for irrigation purposes in this area, but the generation data provided by Mr. Barker indicates that this season-of-use has been adequate. To date, no power generation has occurred outside of the permitted SOU.

Place-of-Use

Available Canyon County taxlot information shows that the place-of-use is within Boise Project Board of Control property.

I created the place-of-use shape based on aerial photography. The PLSS address of the POU now includes a government lot number. Adding a government lot is considered a clarification so an amendment of the permit is not required.

Point-of-Discharge

The powerhouse is constructed to straddle the divergence of two canals. The Arena Canal heads south from the powerhouse. And the Golden Gate Canal heads north. Water that is not exhausted by downstream irrigation use is eventually discharged into the Snake River.

Status and Combined Use

The POD in Ada County and the POU in Canyon County are within the jurisdiction of Water District 63.

Both the field examiner and I found that additional water has been utilized for power generation than had been authorized by this permit. An additional permit is needed to cover the 37 cfs diverted.

Recommendations

For a license, I am recommending 80 cfs as the rate and that the project operation either be confined to this rate or that the Boise Project Board of Control acquire an additional permit as soon as possible.

I am recommending no volume for this water right license. The volume of water released from Lucky Peak and diverted down the New York Canal is not under the control of the powerhouse operators. They can only use the water which passes through the Boise Project's canal system for other purposes.

Conditions

The permit holder is in compliance with all the conditions of the permit. Compliance with conditions 10 and 12 is somewhat complex and indirect.

Condition 10 of the permit required that a measuring device and lockable controlling works be installed as part of the diverting works. The condition is not specific about the location of the required works. And there are several measuring and controlling points on the canal system's extensive diversion works. The measuring device nearest to the diversion of the New York Canal from the Boise River, is a gauging station on the New York Canal, which is located approximately 1 mile below the Diversion Dam, in section 33, Twp 3N, Rge 3E. This USBR Hydromet station provides real-time data under the identifier BSEI.

Condition 12 required that the permit holder install a measuring device that could be used to determine the instantaneous rate of flow through the power system. Although, it takes the sum of two different weir measurements, an estimate of bypass flow and the confirmation of simultaneous generation, the quantity of water passing through the turbine can be determined.

Director's term review condition

Both the Federal Energy Regulatory Commission (FERC) and the IPUC (Idaho Public Utilities Commission) have jurisdiction over this hydroelectric project. This project is known to FERC as the Arena Drop Hydroelectric Project and is identified with FERC docket number 4858. FERC issued an exemption from licensing on September 30, 1981, to Boise Project Board of Control. A copy of the FERC order which grants the exemption is part of the water right file. A FERC exemption does not have expiration date. With very few exceptions, they are issued in perpetuity.

The Boise Project Board of Control has a contract with the Department of Interior Bureau of Reclamation which authorizes construction of low-head hydropower projects such as the Arena Drop Project. Although the water right file contains some correspondence between the two entities and references to the contract, the file does not yet contain a copy of that contract. Therefore, I needed to find another document upon which to base the term of the license.

For the purposes of developing power generation facilities, an agreement exists between the five irrigation districts which make up the Board of Control and Riverside, Inc.. Riverside, Inc. is registered with IDSOS as C100751. A copy of the fourth addendum to the agreement between the two entities has been provided to the water right file. The agreement appears to have a 20-year lifespan, but the fourth addendum does not clearly state the expiration date.

On April 4, 2010, the Boise Project Board of Control submitted to FERC, the form required for self-certifying the Arena Drop project as a qualifying PURPA facility. A copy of the submittal is available in the water right file. In addition, a copy of the Firm Energy Sales Agreement (FESA) between Riverside Investments, LLC. and Idaho Power Company is also available in the water right file. The FESA is for 20 years beginning March 8, 2010. It has been approved by the IPUC as IPC-E-10-05, Order Number 31060. Therefore, I am setting the term review date of this license as the expected termination date of the FESA, which is March 8, 2030.

TOWNSHIP 2 NORTH, RANGE 3 EAST, OF THE BOISE MERIDIAN, IDAHO

DEPENDENT RESURVEY, SUBDIVISION, AND METES-AND-BOUNDS SURVEY

A history of surveys is contained in the field notes.

This plat represents the dependent resurvey of portions of the subdivisional lines and subdivision of sections 3, 4, 10, and 11, designed to restore the corners in their true original locations according to the best available evidence, and the further subdivision of section 4, and metes-and-bounds surveys in sections 3, 4, 10, and 11, T. 2 N., R. 3 E., Boise Meridian, Idaho.

For those lines not depicting bearings and distances, refer to the plats accepted May 12, 1911, November 12, 1912, and July 31, 2001.

Except as depicted hereon, the lottings and areas are as shown on the plats accepted May 12, 1911 and July 31, 2001.

Survey executed by Keith C. Brooks, Cadastral Surveyor, Bureau of Reclamation, beginning October 18, 2011 and completed July 15, 2012, pursuant to special instructions dated October 17, 2011, for Group No. 1386, Idaho.

NOTE: Dashed line is the present right bank of the Boise River and is shown for informational purposes only.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Boise, Idaho

May 29, 2013

This plat is strictly conformable to the approved field notes and the survey, having been correctly executed in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

For the Director

Stanley L. French
Chief Cadastral Surveyor for Idaho

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CORNER SYMBOL LEGEND

- ◊ BLM/GLO corner
- Local or BOR corner
- Corner determined, not monumented
- Corner determined and monumented

300 200 0 500 1000 1500 2000 2500 3000
U.S. Survey Feet

