

MEMORANDUM

Date: December 5, 2008
To: Water Right File 22-7698
From: medl
Re: license review

Applicant

Rocky Mountain Environmental Associates has been hired by the City of Driggs to assist them with their water rights. The City of Driggs has an Application for Transfer that cannot be processed until this permit and a sibling permit for appropriation through the High School well (#22-7790), are processed. Kristin Moore, Water Rights Analyst for Rocky Mountain Environmental Associates, Inc., requested that the two permits be licensed. I added Rocky Mountain Environmental as a consultant and to receive correspondence for this permit.

Source and POD

The Lions Park well was drilled in 1992. The City of Driggs expected this well to be shallower and to provide water at a higher flow rate than it has. Two extensions on Proof of Beneficial Use through this permit were granted and there is evidence that the city acted on recommendations from a consultant during the development period. Well log documentation shows that reworking of the well screens was accomplished in September 1993.

On October 2, 2008, I received an email from IDWRs Eastern Region office. They had received an Application for Amendment of a Permit which impacted this permit and forwarded an electronic copy of it to me. The amendment seeks to add several points of diversion representing wells that are either connected to the water system or soon will be. Based on the summary of the City of Driggs water supply system that DEQ had provided to me in September 9, 2008, two of the six additional diversion points sought in the amendment are not yet on the system. Although the Valley Center well, the Teton Creek well and the Huntsman well have been drilled they can not be added as diversions for this water right because they were not part of the system in 1995. I was able to add points of diversion representing the High School well, (#22-7790) which is in concurrent processing, the Dalley well, and the Tank well. I used spatial data points which were GPSd by DEQ to locate the points of diversion for the later. The point of diversion for the high school well was confirmed in a phone conversation with the city of Driggs public works director Jared Gunderson.

A transfer will be needed to add the remaining points of diversion requested in the amendment. The consultant has been informed and has ok ed processing this water right with 4 points of diversion.

Water Use

The Lions Park well is not delivering the amount appropriated by the permit. The initial well log shows the well producing 400 gpm (~0.89 cfs). A request for an extension of time to prove beneficial use indicated that the capacity may have been enhanced after 1993, that an engineer had pump tested the well and ordered a 60 hp/600 gpm pump, but there was no other file documentation supporting a successful increase in the flow rate up to the expected, permitted capacity. This well is still underperforming.

The field examiners report from 2001 lists a 35-hp pump of unknown make and model as being in place. Unfortunately, the field report is very sketchy and has little information supporting beneficial use of water through this well. The Lions Park well is the third water source in the series that city brings online as needed. No measurement was taken during the exam. The permit required measuring devices be installed and the proof form states that a measuring device is in place but no record of flow or volume were included in the exam report.

Reviewer Nate Arave (IDWR Eastern Region) calculated a theoretical value based on data pieced together from the field exam and from results of a study that the city had done. Table 11.1-a: Water

Sources – Rights and Capacity (City of Driggs Comprehensive Plan 2007-2020, p 68) is available in the water rights file and Nate has emailed me a complete copy of the plan, which is dated November 8, 2007. Unfortunately, the plan document doesn't have authorship-compiler information and has not cited the time frame of the source interview for the water data. Without confirmation that the plan's water data was valid in the time period before the field exam, it is of questionable value to this water right. The Department needs data from the time frame immediately preceding December 27, 1995, the date that the Proof Beneficial Use form was submitted for this permit. I did not use the dubious equipment information provided in the field examination report and could not corroborate the theoretical inputs used by the reviewer.

The City of Driggs has PWS# ID7410004. I emailed Greg Eager IDEQ Eastern Region on 9/4/2008 and informally requested City of Driggs well capacity information from him. On 9/9/2008, I received an email response from him which summarized DEQs understanding of the current capacities for the city wells.

On 9/9/2008 I called Jared Gunderson (City of Driggs public works director) and asked for more information on this well and the High School well (#22-7790). In a follow-up email, I detailed what information I needed in order to keep from voiding the permits due to lack of proof of beneficial use.

On October 10, 2008 I received a package from the City of Driggs which contained documentation supporting beneficial use through both the Lions Park well (22-7698) and the High School well (22-7790). The power records confirm use was established by the proof due dates of both permits. Permits for municipal use do not need volume determination so I did not verify the demand multipliers. I only needed an operational start date.

On November 25, 2008, I received a phone call from Jared Gunderson. He stated that he had fixed the flow meter on this well and had witnessed readings from 540 cfs-580 cfs. He also confirmed that the pump in place is the same 60-hp pump that was outlined on the Pump Tech invoice dated April 19, 1995.

I reviewed the older City of Driggs water rights 22-2132, 22-7529, and 22-7530 looking for unlicensed capacity, but did not find any. The rates and capacities of these senior rights have typically been established by theoretical methods rather than by flow measurements.

On 12/8/2008, I received a phone call and email from Kristin Moore of Rocky Mountain Environmental Associates. Pump Tech personnel had been able to locate additional records for the Lion Parks replacement pump and she forwarded those records to me. They confirm that a 60-hp/600-gpm pump, conforming to the well consultants recommendations, was installed before the proof date.

The pump curve forwarded to me on 12/5/08 shows that the pump design capacity is 600 gpm or 1.34 cfs and that is the rate I recommend for this part of the system.

Place of Use

Although the City of Driggs is within the Snake River Moratorium area, municipal permits can be licensed.

The large POU shape in department files was significantly different than the shape provided by Rocky Mountain Environmental Associates with the amendment to this permit. I requested a copy of the shape and projection files from Rocky Mountain Associates and received them on 12/5/2008. The POU shape needed a small adjustment to the projection before I was able to import it into the database.

Calculations

Without measurement and flow records I used a theoretical calculation to estimate the flow rate for this well. The equation is:

$$\text{Theoretical } Q = \frac{8.8 \times \text{pump efficiency} \times \text{pump horsepower}}{\text{depth to water} + (2.31 \times \text{pressure in psi}) + \text{friction}}$$

I used the following parameters:

assumed pump efficiency = 70%

assumed total friction is negligible

pump horsepower = 60-hp (from pump invoice and proof of beneficial use form)

depth to water = 160 ft (from Pump Tech invoice and proof of beneficial use form)

pressure = 60 psi (from proof of beneficial use form)

$$\text{Lions Park Q} = \frac{8.8 \times 0.7 \times 60}{160 + (2.31 \times 60) + 0}$$

Therefore, the theoretical flow rate I calculated for the Lions Park well is approximately equal to 1.24 cfs or 557 gpm. The rate given by the pump curve mentioned above is greater than this theoretical value but is reasonable.