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DEPT. OF WATER RESOURCES
SOUTHERN REGION

Attn Mary Baldwin
Administrative Assistant
Idaho Department of Water Resources
1341 Fillmore Street
Suite 200
Twin Falls, Idaho 83301-3380

RE Application for permit No. 37-225-45

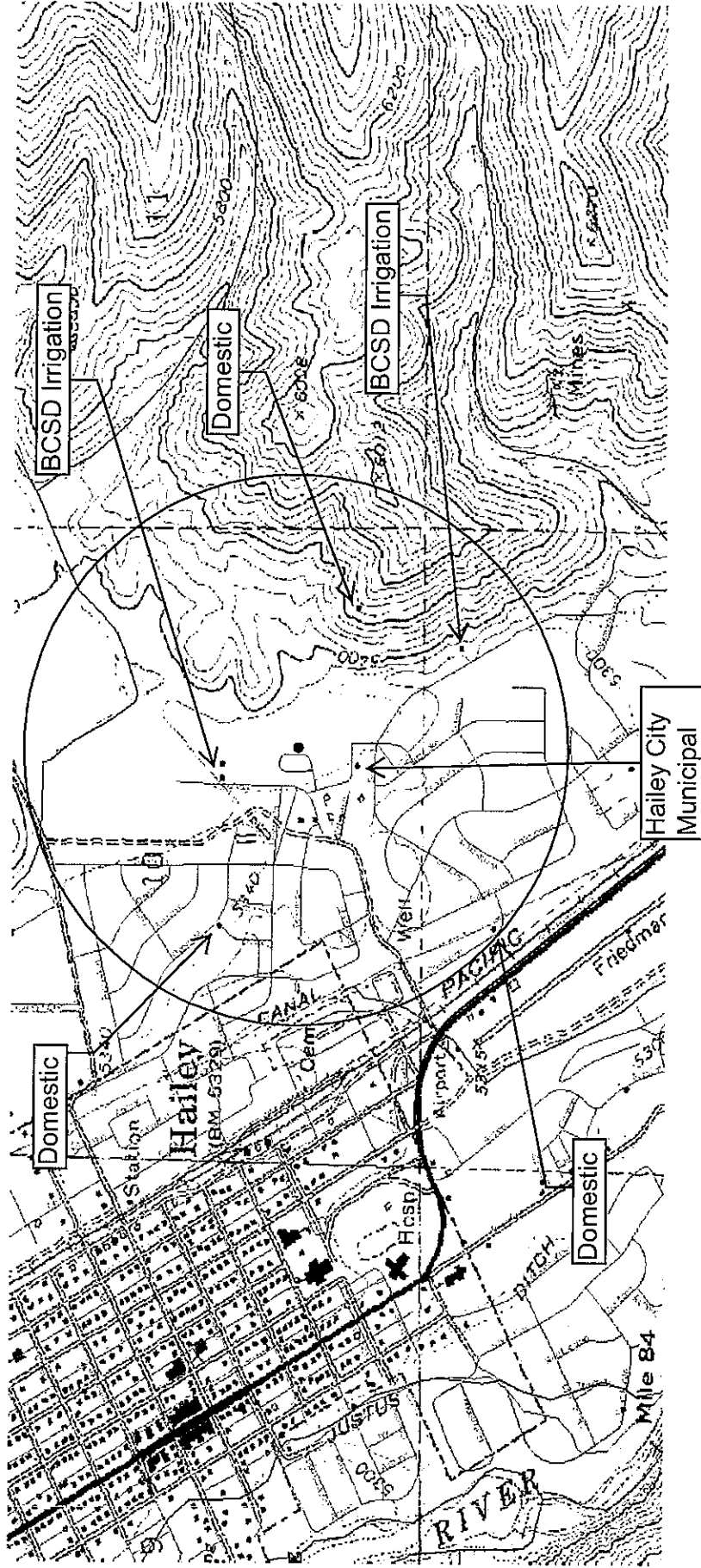
Dear Ms. Baldwin:

Enclosed please find the responses requested in your August 26, 2010 letter regarding Application for Water Right Permit No. 37-22545. We have addressed the questions and hope this covers the clarification needed.

If there are further questions feel free to contact either myself or Mike Chatterton from the Blaine County School District.

Sincerely,

Marvin Sauer
Program Manager
(208)870-6427



Rule 040.05.c and Idaho Code, Section 42-203A(5)(a) Information relative to effects on existing rights.

- i. If diverting from a surface water source with 5 or fewer existing users, submit the right numbers held by those users if available.

NA The water right application is for ground water only no surface water will be used.

- ii. If diverting from ground water source submit a map locating your proposed wells and other wells within a ½ mile radius of your well. It would be helpful to describe the use from those wells (i.e.; domestic, irrigation, etc.)

Please see attached topographic map with ½ mile radius circle and wells located within that circle.

- iii. This rule seeks general information about the type of irrigation system you intend to install and how the project may affect other users. If you feel your proposed project will not affect other users, then explain why.

This water right application is for a ground source heat pump project. The water being extracted from the ground will be used in a non-consumptive manner. The water will be single passed through a stainless steel flat plate heat exchanger and then injected back to the ground water aquifer. The water will never be exposed to anything other than the heat exchanger so there will not be a chemical change to the water. The route to and from the heat exchanger will be kept as short as possible to reduce pumping costs. We will only be extracting or rejecting heat to the water. Designed maximum delta-T for the well system is a maximum of 10° F with average delta-T anticipated to be 4-6° F.

The water will be injected slightly south of the extraction point so natural aquifer flow will prevent thermal loading of the extraction well.

The extraction and injection wells will be located entirely on the large tract of land owned by the school district and there will not be a measurable temperature or water level change of the aquifer outside of school property.

Rule 040.05.d and Idaho Code, Section 42-203A(5)(b) Information relative to sufficiency of water supply:

- i. Provide projections for your peak and average water demands.

Design is not complete; but based on block load calculations our maximum peak flow could be as high as 9.4 CFS. This would only occur if all the building zones were calling for full heat at the same time. A more typical demand would be 4.6 CFS and this would occur on Monday morning when the building is being brought back from a weekend of night setback.

Once we calculate system and building diversity we may see these numbers drop to a lower level. Three buildings will be served by this system and each building has different needs throughout the day. Our intent is to scavenge excess energy from one building and share it with the other buildings but this final energy analysis will not occur until after the total building design is complete.

Again all of these water uses are non-consumptive since we will return all of the extracted water back to the ground water aquifer.

- ii. Provide some basic information about the nature of the water supply.

Ground water conditions in the Hailey area included aquifers of alluvial inter-bedded sands, silts and gravels. Aquifer conditions indicate high volume wells can be drilled and developed if designed, drilled and completed taking advantage of the more permeable sands and gravels found throughout the valley area. The aquifer being targeted is capable of delivering high volume wells as evidenced by the city well to the SW of the school district. On the margin of the valley, problems have occurred with ground water withdrawals because of shallow bedrock conditions.

Wells near Wood River High School appeared to be deeper, ranging from 93 to 174 feet deep with production less than 100 gallon per minute for small diameter domestic wells. The location of these facilities at the mouth of Quigley Creek puts this facility in finer grained sediments and near surface bedrock. One of the wells in the area intersected granite at 170 feet, with the water inflows from 150 to 170 feet. The only reported temperature in the area was 52 degrees Fahrenheit for the ground water resource. So we are using 52 degrees as our basis of design.

In summary the Wood River High School/Community Campus/District Support Center Campus in Hailey lies in the Big Wood River Valley and is underlain by an alluvial aquifer composed of inter-bedded silt, sand and gravel. This aquifer is very prolific supplying shallow domestic wells with adequate water and larger, deeper municipal and irrigation wells with several hundred gallons per minute volumes. Wells capable of 500 gallon per minute or more could be drilled in the vicinity of the schools to supply water for heat pump application. These wells would have to be large diameter wells to house adequate pumps and be screened and developed in the permeable sand and gravel systems to supply large quantities of water. Injection wells would be recommended to maintain aquifer conditions and eliminate consumptive use of the water. In some situations standing column wells may be considered as the ground water flow in the Big Wood River aquifer appears to be fairly rapid. A single well system (1 production and 1 injection well) should be adequate for smaller school buildings. Several production wells may need to be considered for the Wood River High School/Community Campus/District Support Center in Hailey because of flows needed for the system. This system may only require a single injection well depending on aquifer conditions.

Rule 040.05.e and Idaho Code, Section 42-203A(5)(c) Information relative to good faith, delay, or speculative purposes of the applicant:

- i. If you do not own the land to be irrigated and/or where the point of diversion is located, you must submit copies of lease agreements, easements or right-of-ways etc.

The Blaine County School District (applicant) owns the entire area where the extraction and injection wells are to be located. The wells will be centrally located on the property and since they are non-consumptive should not affect the aquifer outside of school district property lines.

- ii. If applicable submit copies of applications for permits or approvals which are needed from other government agencies or individuals in order to complete the water development project.

No other government agencies require permits relating to ground water on this project.

Rule 040.05.g and Idaho Code, Section 42-203A(5)(d) Information relative to financial resources:

- i. Submit a current financial statement or other statement describing how you will finance the project.

The Geothermal project the Blaine County School District has undertaken will be financed in one of the following ways:

The first choice is to borrow the funds under the Qualified School Construction Bond program through the State of Idaho. We have received an allocation of \$5,000,000 in July of 2010 and have requested an additional \$16,000,000 to be allocated over the course of the next six months.

The second option would be to use the proceeds of the \$6,000,000 per year School Plant Facilities Levy that was passed in October of 2009. This levy will be collected starting in December of 2010.

The third option would be to use General Fund carryover budgets to fund the project and repay the General Fund as the proceeds from the levy are collected over the next two years.

- ii. You must submit plans and specifications along with basic estimates of construction and equipment costs of the proposed project.

The design for this part of the project is not complete so well design is not complete. Once the building models are finalized we will be able to finalize our flow requirements and then design our well sizes.

Rule 040.05.g and Idaho Code, Section 42-203A(5)(e)

- i. You, as the applicant, bear the initial burden of coming forward with evidence as to whether your proposed project may have any affect concerning local public interest. If you have any reason to believe that the proposed project under your application may be of concern to any local individuals, governments, tribal reservations, irrigation districts, the State Fish and Game Department, or Health and Welfare Department, then you are responsible for seeking comments from those individuals or groups.

This ground source heat pump project will incorporate state of the art stainless steel flat plate heat exchangers, high efficient pumps and VFDs to extract heating and cooling from ground water. The ground water will be used in a non-consumptive manner with 100% of the extracted water being injected into the same aquifer with only a small temperature change to the water. The aquifer being targeted is a large and fast moving aquifer that shows ample capacity to supply the water needs of this project. The extraction wells, injection wells and all interconnecting piping will reside solely on a large tract of land owned by the school district.

Every effort will be made to minimize environmental impact during the well construction process with industry recognized erosion and sediment plans as well as a complete environmental cleaning and re-landscaping after construction. All erosion control and landscaping will meet or exceed City of Hailey requirements.

These school district ground source heat pump projects have been heavily publicized, utilizing town meetings and school presentations. There have never been any environmental concerns regarding this ground water use application.