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MAY - 7 2012

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
**APPLICATION FOR PERMIT**  
To appropriate the public waters of the State of Idaho

Ident. No. 95-16473

IDWR/NORTHERN

1. Name of applicant(s) Kootenai Technical Education Campus Phone 208-661-3921  
Name connector (check one): ☐ and ☐ or ☐ and/or

Mailing address: KTEC CO311 N 10th St. City Coeur d'AleneState ID Zip 83814 Email: mcotner@cdaschools.org

2. Source of water supply ground water which is a tributary of Rathdrum, Aquifer

3. Location of point(s) of diversion:

| Twp | Rge | Sec | Govt Lot | 1/4 | 1/4 | 1/4 | County   | Source       | Local name or tag # |
|-----|-----|-----|----------|-----|-----|-----|----------|--------------|---------------------|
| 51N | 4W  | 7   |          |     | NE  | NE  | Kootenai | Ground water | D0060952            |
| 51N | 4W  | 7   |          |     | NE  | NE  | Kootenai | Ground water | D0060951            |
| 51N | 4W  | 7   |          |     | NE  | NE  | Kootenai | Ground water | D0060950            |
| 51N | 4W  | 7   |          |     | NE  | NE  | Kootenai | Ground water | D0060949            |

4. Water will be used for the following purposes:

Amount 280 GPM - 6720 GPD for Geothermal, Heat/Cool purposes from \_\_\_\_\_ to \_\_\_\_\_ (both dates inclusive)  
(cfs or acre-feet per year)

Amount 0.63 CFS for Heating purposes from 1-1 to 12-31 (both dates inclusive)  
(cfs or acre-feet per year)

Amount 0.63 CFS for Cooling purposes from 1-1 to 12-31 (both dates inclusive)  
(cfs or acre-feet per year)

Amount \_\_\_\_\_ for \_\_\_\_\_ purposes from \_\_\_\_\_ to \_\_\_\_\_ (both dates inclusive)  
(cfs or acre-feet per year)

5. Total quantity to be appropriated is (a) 0.63 cubic feet per second (cfs) and/or (b) \_\_\_\_\_ acre-feet per year (af).

6. Proposed diverting works:

a. Describe type and size of devices used to divert water from the source. Well Pumps - Piped to Buildings  
Heat exchanger - Piped Back to Injection well

b. Height of storage dam \_\_\_\_\_ feet; active reservoir capacity \_\_\_\_\_ acre-feet; total reservoir capacity \_\_\_\_\_ acre-feet. If the reservoir will be filled more than once each year, describe the refill plan in item 11.

For dams 10 feet or more in height OR reservoirs with a total storage capacity of 50 acre-feet or more, submit a separate Application for Construction or Enlargement of a New or Existing Dam. Application required? ☐ Yes ☐ No

c. Proposed well diameter is 8" inches; proposed depth of well is 300' feet.

d. Is ground water with a temperature of greater than 85°F being sought? ☐ Yes ☒ No

e. If well is already drilled, when? \_\_\_\_\_; drilling firm \_\_\_\_\_;  
Well was drilled for (well owner) \_\_\_\_\_; Drilling Permit No. \_\_\_\_\_.

7. Description of proposed uses (if irrigation only, go to item 8):

a. Hydropower; show total feet of head and proposed capacity in kW. \_\_\_\_\_

b. Stockwatering; list number and kind of livestock. \_\_\_\_\_

c. Municipal; show name of municipality or the applicant's qualifications as a municipal provider. \_\_\_\_\_

d. Domestic; show number of households \_\_\_\_\_

e. Other; describe fully. Education, School - Geothermal Heating and Cooling

8. Description of place of use:

- a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
- b. If water is used for other purposes, place a symbol of the use (example: D for Domestic) in the corresponding place of use below. See instructions for standard symbols.

| TWP | RGE | SEC | NE    |       |    |    | NW |    |    |    | SW |    |    |    | SE |    |    |    | TOTALS |
|-----|-----|-----|-------|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
|     |     |     | NE    | NW    | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE |        |
| 51N | 04W | 7   | 6 1/2 | 6 1/2 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |
|     |     |     |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |
|     |     |     |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |
|     |     |     |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |
|     |     |     |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |

Total number of acres to be irrigated: \_\_\_\_\_

9. Describe any other water rights used for the same purposes as described above. Include water delivered by a municipality, canal company, or irrigation district. If this application is for domestic purposes, do you intend to use this water, water from another source, or both, to irrigate your lawn, garden, and/or landscaping? \_\_\_\_\_

10. a. Who owns the property at the point of diversion? Kootenai Technical Education Campus
- b. Who owns the land to be irrigated or place of use? Kootenai Technical Education Campus
- c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing: \_\_\_\_\_

11. Describe your proposal in narrative form, and provide additional explanation for any of the items above. Attach additional pages if necessary. \_\_\_\_\_

12. Time required for completion of works and application of water to proposed beneficial use is 5 years (minimum 1 year).
13. **MAP OF PROPOSED PROJECT REQUIRED** - Attach an 8½" x 11" map clearly identifying the proposed point of diversion, place of use, section #, township & range. A photocopy of a USGS 7.5 minute topographic quadrangle map is preferred.

The information contained in this application is true to the best of my knowledge. I understand that any willful misrepresentations made in this application may result in rejection of the application or cancellation of an approval.

Signature of Applicant

Print Name (and title, if applicable)

Signature of Applicant

Print Name (and title, if applicable)

For Department Use:

Received by ow Date 5-7-12 Time 1:05 PM Preliminary check by \_\_\_\_\_

Fee \$ 250.00 Received by ow Receipt No. NQ29167 Date 5-7-12

## UIC Program Guidance For Calculating the Average Weekly Injection Rate



The UIC Program does not dictate what method you use to calculate the Average Weekly Injection Rate for your injection well. The following are options you can use to make your calculation or for guidance to develop your own method. Document your calculation by using one of the options below or attaching your calculation. This information is required in Section I.D.

### Example 1 – Heat Pump (Injection well class 5A7)

| Pumping rate of heat pump in gallons per minute (gpm) |   | Hours per day heat pump will run on coldest day of year |   | Number of days per week heat pump will run during week coldest day occurs |   | Constant to convert to gallons per minute (gpm) |   | Average Weekly Injection Rate (gpm) |
|-------------------------------------------------------|---|---------------------------------------------------------|---|---------------------------------------------------------------------------|---|-------------------------------------------------|---|-------------------------------------|
| 8 gal/min                                             | x | 18 hours/day                                            | x | 7 days/wk                                                                 | x | 0.00595 wks/hour                                | = | 6.0 gpm                             |
|                                                       | x |                                                         | x |                                                                           | x |                                                 | = |                                     |
|                                                       | x |                                                         | x |                                                                           | x |                                                 | = |                                     |

### Example 2 – Sprinkler Irrigation Return Flow (Injection well class 5F1)

| Number of acres drained |   | Volume of water applied                              |   | % waste water |   | Constant to convert to gallons per minute (gpm) |   | Average Weekly Injection Rate |
|-------------------------|---|------------------------------------------------------|---|---------------|---|-------------------------------------------------|---|-------------------------------|
| 40 acres                | x | 9 gal/min/acre<br>X<br>10080 min/wk                  | x | 0.05          | x | 0.000099 wk/min                                 | = | 18 gpm                        |
|                         | x |                                                      | x |               | x |                                                 | = |                               |
| 40 acres                | x | 0.02 ft <sup>3</sup> /sec/acre<br>x<br>604800 min/wk | x | 0.05          | x | 0.0000017 wk/min                                | = | 0.04 cfs                      |
|                         | x |                                                      | x |               | x |                                                 | = |                               |
|                         | x |                                                      | x |               | x |                                                 | = |                               |

### Example 3 – Theoretical Calculation of Flow Through a Pipe

The calculation used to generate this table assumes unrestricted flow through a well casing of the designated size. The calculation represents the maximum injection rate that is theoretically possible, which may be significantly larger than the subsurface will actually allow. Using this calculation will result in a relatively large radius of influence, which may cause your permit to include a monitoring requirement.

| Well Diameter | Average Weekly Injection Rate |
|---------------|-------------------------------|
| 6"            | 2.5 cfs                       |
| 8"            | 4.4 cfs                       |
| 10"           | 6.8 cfs                       |
| 12"           | 9.8 cfs                       |
| 14"           | 13.4 cfs                      |

# UIC Program Guidance For Calculating Total Domestic Water Use For Permitting a Ground-Source Heat Pump



Idaho Code (42-111 & 42-227) defines domestic water use and states that a water right is not required for domestic use, provided that the volume of water does not exceed 13,000 gallons per day. When permitting an injection well for a ground-source heat pump, the UIC Program must determine if the use of a heat pump will cause a homeowner to exceed the 13,000 gallon per day limit for a domestic water right exemption. If domestic water use is anticipated to exceed 13,000 gallons per day, the applicant must obtain a water right before the injection well permit can be issued by IDWR.

The following table should be completed to document your calculation of total domestic water use for Section II of your injection well application.

| Use                               | Gallons Per Day<br>Per Person                                                |   | Number of<br>People  |   | Total Gallons<br>Used Per Day |
|-----------------------------------|------------------------------------------------------------------------------|---|----------------------|---|-------------------------------|
| Single Family Residence           | 75                                                                           | x |                      | = |                               |
| Luxury Residence                  | 150                                                                          | x |                      | = |                               |
|                                   |                                                                              |   |                      |   |                               |
| Use                               | Gallons Per Day<br>Per Animal                                                |   | Number of<br>Animals |   |                               |
| Cattle                            | 12                                                                           | x |                      | = |                               |
| Dairy Cattle                      | 35                                                                           | x |                      | = |                               |
| Horses                            | 12                                                                           | x |                      | = |                               |
| Mules                             | 12                                                                           | x |                      | = |                               |
| Hogs                              | 4                                                                            | x |                      | = |                               |
| Goats                             | 2                                                                            | x |                      | = |                               |
| Sheep                             | 2                                                                            | x |                      | = |                               |
| Other Livestock                   |                                                                              | x |                      | = |                               |
|                                   |                                                                              |   |                      |   |                               |
| Use                               | Gallons Per Day<br>Per 100 Animals                                           |   | Number of<br>Animals |   |                               |
| Chickens                          | 10                                                                           | x |                      | = |                               |
| Turkeys                           | 18                                                                           | x |                      | = |                               |
| Other Poultry                     |                                                                              | x |                      | = |                               |
|                                   |                                                                              |   |                      |   |                               |
| Use                               | Gallons Per Day<br>Per 1 Acre at 9 gpm                                       |   | Number of<br>Acres   |   |                               |
| Irrigation                        | 12,960                                                                       | x |                      | = |                               |
|                                   |                                                                              |   |                      |   |                               |
| Use                               | Average Weekly<br>Injection Rate (gpm)<br>See Page 5 Guidance –<br>Example 1 |   | Minutes Per<br>Day   |   |                               |
| Heat Pump                         |                                                                              | x | 1440                 | = |                               |
|                                   |                                                                              |   |                      |   |                               |
| Other Uses                        | Gallons Per Day                                                              |   |                      |   |                               |
|                                   |                                                                              |   |                      |   |                               |
|                                   |                                                                              |   |                      |   |                               |
|                                   |                                                                              |   |                      |   |                               |
|                                   |                                                                              |   |                      |   |                               |
|                                   |                                                                              |   |                      |   |                               |
| <b>Total Gallons Per Day Used</b> |                                                                              |   |                      |   |                               |

**E. Injection Well Classification:** (Circle the proper code. In PDF version use: Tools → Comments & Markup → Oval Tool)

| Code: | Injection Activity Associated With:                                 | Code: | Injection Activity Associated With:                  |
|-------|---------------------------------------------------------------------|-------|------------------------------------------------------|
| 5A5   | Electric Power Generation                                           | 5W10  | Cesspools                                            |
| 5A6   | Geothermal Heat (Source H <sub>2</sub> O Temp > 85° F)              | 5W11  | Septic Systems (General)                             |
| 5A7   | Closed-Loop Heat Pump Return (Source H <sub>2</sub> O Temp < 85° F) | 5W12  | Water Treatment Plant Effluent                       |
| 5A8   | Aquaculture Return Flow                                             | 5W20  | Industrial Process Water                             |
| 5A19  | Cooling Water Return (Industrial Cooling)                           | 5W31  | Septic Systems (Well Disposal)                       |
| 5B22  | Saline Water Intrusion Barrier                                      | 5W32  | Septic Systems (w/ Drainfield)                       |
| 5D2   | Storm Water Runoff (Roadway/Pavement Drainage)                      | 5X13  | Mine Tailing Backfill                                |
| 5D3   | Improved Sinkholes                                                  | 5X14  | Solution Mining                                      |
| 5D4   | Industrial Storm Runoff (Building/Pavement Drainage)                | 5X15  | In-Situ Fossil Fuel Recovery                         |
| 5F1   | Agricultural Runoff Waste (Agricultural Drainage)                   | 5X16  | Spent Brine Return Flow                              |
| 5G30  | Special Drainage Water (Rarely Used)                                | 5X25  | Experimental Technology                              |
| 5N24  | Low-Level Radioactive Waste                                         | 5X26  | Aquifer Remediation                                  |
| 5R21  | Aquifer Storage & Recharge                                          | 5X27  | Other Wells (Rarely Used)                            |
| 5S23  | Subsidence Control                                                  | 5X28  | Service Station Wells (Motor Vehicle Waste Disposal) |
| 5W9   | Untreated Sewage                                                    | 5X29  | Abandoned Drinking Wells (Converted from Domestic)   |

**F. Well Construction Information:** (Attach well log, if available)

☐ As Built      ☒ Expected Construction      ☐ Well Modification

Total Well Depth: 300 (ft)

Well Casing: Diameter 12 (in) Depth 285 (ft)

Ht. above Ground Surface (ft) Casing Type

Perforation: From 285 (ft) To 310 (ft)

Surface Seal: Depth (ft) Seal Type

Construction Date (Indicate Actual, Approximate or Anticipated):

Driller's Name:

For well modifications describe purpose and intended changes:

**G. Adjacent Features:**

Depth to Groundwater (ft) ☐ Estimate ☐ Measured Date Measured

Distance to Nearest Domestic Well (ft) Direction

# APPLICATION



1 inch = 524 feet



## Legend



QQ



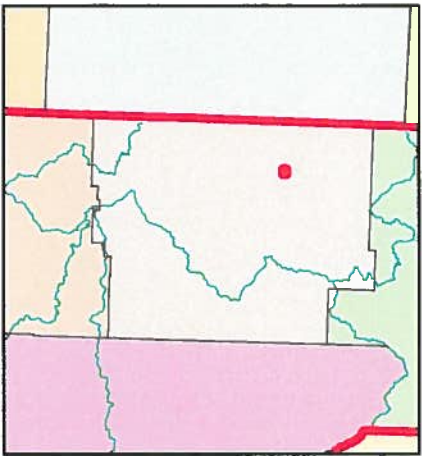
Taxlots



# Idaho Department of Water Resources

Application  
**95-16473**  
(COOLING)

- Point of Diversion
- Place of Use
- State Outline
- Townships
- PLS Sections
- Quarter Quarters



Prepared by Davis, Eric

2009 Aerial Photography

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