

Permit No. _____



APPLICATION FOR PERMIT TO CONSTRUCT, MODIFY OR MAINTAIN AN INJECTION WELL

IDAHO DEPARTMENT OF WATER RESOURCES
322 East Front St., PO Box 83720, Boise, ID 83720-0098
Under the Provisions of Title 42, Chapter 39 of the Idaho Code

I. INFORMATION REQUIRED FOR ALL INJECTION WELLS

A. Application Type:

- New Injection Well Operating Permit (A Drilling Permit is also required prior to construction)
- Permit to Modify an Existing Injection Well
- Renew Operating Permit of an Existing Injection Well

B. Legal Owner:

Name _____
 Organization Name _____
 Mailing Address _____
 City _____ State _____ Zip Code _____
 Phone No. 1 _____ Phone No. 2 _____

**If the property will change ownership soon, provide contact information for future owner:

C. Well Location:

Facility Name _____
 Address _____
 City _____ State _____ Zip Code _____
 County _____ Facility Phone No. _____

Provide one of the following two options:

- 1) GPS Location (Datum = WGS84):

Latitude _____ Longitude _____

(You can check the accuracy of your GPS data with the "Well Diller's Locator Tool" here:
<http://maps.idwr.idaho.gov/locator/default.aspx>)

- 2) A USGS Topographic Map or aerial photo with the well location marked **and** Township, Range, Section information.

| Township | Range | Section | ¼, ¼, ¼ Section | ¼, ¼ Section | ¼ Section |
|----------|-------|---------|-----------------|--------------|-----------|
| | | | | | |

(Get free maps using this tool: <http://maps.idwr.idaho.gov/IrrigationRightsFinder>)

D. Well Operation:

Frequency of Injection: Continuous (24 hr/day, 7 day/wk) Intermittent

Maximum Average Weekly Rate _____ cfs gpm
(guidance attached)

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 ₂ O Temp > 85° F) | 5W11 | Septic Systems (General) |
| 5A7 | Closed-Loop Heat Pump Return (Source H ₂ 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: _____ (ft)

Well Casing: Diameter _____ (in) Depth _____ (ft)

Ht. above Ground Surface _____ (ft) Casing Type _____

Perforation: From _____ (ft) To _____ (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 _____

II. INFORMATION REQUIRED ONLY FOR HEAT EXCHANGE (CLASS 5A7) INJECTION WELLS

Please check all of your domestic uses served by your groundwater well:

- Household Irrigation ($\leq \frac{1}{2}$ acre) Livestock
 Heat Pump Other _____

What is your total domestic groundwater usage? _____ Gallons Per Day
(Guidance on page 6)

Are you connected to a city or community drinking water system? Yes No

Do you have a water right for the heat pump? Yes No Water Right # _____

Have you applied for a water right for the heat pump? Yes No Water Right Application # _____

* Attach documentation from your heat pump manufacturer that indicates how many gallons per day your heat pump will use during peak heating and cooling days.

** Applicants seeking permits for a Heat Exchange Injection Well can skip Section III.

III. INFORMATION REQUIRED FOR ALL INJECTION WELLS, EXCEPT HEAT EXCHANGE (CLASS 5A7) INJECTION WELLS

A. Alternative Methods to Injection Well Use:

Describe alternatives to the use of an injection well for waste disposal _____

Why were the above alternative methods rejected? _____

B. Water Treatment Prior to Injection:

- None Chemical Treatment Ultra-Violet Treatment
 Settling Pond Filtration
 Other _____

C. Is this injection well part of a contamination remediation system? Yes No

If yes, please attach a copy of the signed regulatory approval for the remediation action, description of the remediation system, and intended use of the injection well.

D. Constituents in Waste Stream:

- None Hazardous wastes Automotive fluids Pesticides
 Herbicides Other additives or chemicals _____

E. Attach a topographic map or aerial photo showing a one-mile radius of the injection well. Identify the following on the map/photo:

1. Location of the injection well.
2. Location of domestic wells.

You can use the IDWR Well Drillers' Locator to map the existing wells near your location by:

- Open the Well Drillers' Locator: <http://maps.idwr.idaho.gov/locator/default.aspx>
- Enter your GPS location into the "Find a Location in Idaho" window. The map will zoom to that location and mark it with a yellow dot.
- Click the down-arrow on the zoom slider button twice (upper left corner of the map) to zoom out. You should now see a map which shows all wells within a one-mile radius of your site
- Click "Wells", in the list of layers on the right side of the map
- Click the "Print Map" button on the left side of the map

IV. SIGNATURE OF LEGAL OWNER

I hereby submit this Application for Permit to Construct or Maintain an Injection Well. The information herein is true and correct to the best of my knowledge.

| | | |
|------|-----------|-------|
| Date | Signature | Title |
|------|-----------|-------|

Print Name

V. PROCESSING FEE

A \$100.00 processing fee must be submitted for each permit application. A separate permit application and processing fee must be submitted for each injection well. Make checks payable to: Idaho Department of Water Resources.

All sections of this form must be complete and accurate. Incomplete forms will be returned to applicant. The information submitted is subject to verification by IDWR or its agents. Applications and fees can be submitted your nearest IDWR office:

IDWR Northern Region
7600 N Mineral Dr., Suite 100
Coeur d'Alene, ID 83815
Ph: (208) 762-2800

IDWR Southern Region
650 Addison Ave., Suite 500
Twin Falls, ID 83301
Ph: (208) 736-3033

IDWR Eastern Region
900 North Skyline
Idaho Falls, ID 83402
Ph: (208) 525-7161

IDWR Western Region
2735 Airport Way
Boise, ID 83705
Ph: (208) 334-2190

IDWR State Office
322 East Front St., PO Box 83720
Boise, ID 83720-0098
Ph: (208) 287-4800.



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 X 10080 min/wk | x | 0.05 | x | 0.000099 wk/min | = | 18 gpm |
| | x | | x | | x | | = | |
| 40 acres | x | 0.02 ft ³ /sec/acre x 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 Per Person | | Number of People | | Total Gallons Used Per Day |
|-----------------------------------|--|---|-------------------|---|----------------------------|
| Single Family Residence | 75 | x | | = | |
| Luxury Residence | 150 | x | | = | |
| | | | | | |
| Use | Gallons Per Day Per Animal | | Number of 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 Per 100 Animals | | Number of Animals | | |
| | | | | | |
| Chickens | 10 | x | | = | |
| Turkeys | 18 | x | | = | |
| Other Poultry | | x | | = | |
| | | | | | |
| Use | Gallons Per Day Per 1 Acre at 9 gpm | | Number of Acres | | |
| | | | | | |
| Irrigation | 12,960 | x | | = | |
| | | | | | |
| Use | Average Weekly Injection Rate (gpm) See Page 5 Guidance – Example 1 | | Minutes Per Day | | |
| | | | | | |
| Heat Pump | | x | 1440 | = | |
| | | | | | |
| Other Uses | Gallons Per Day | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Total Gallons Per Day Used | | | | | |