

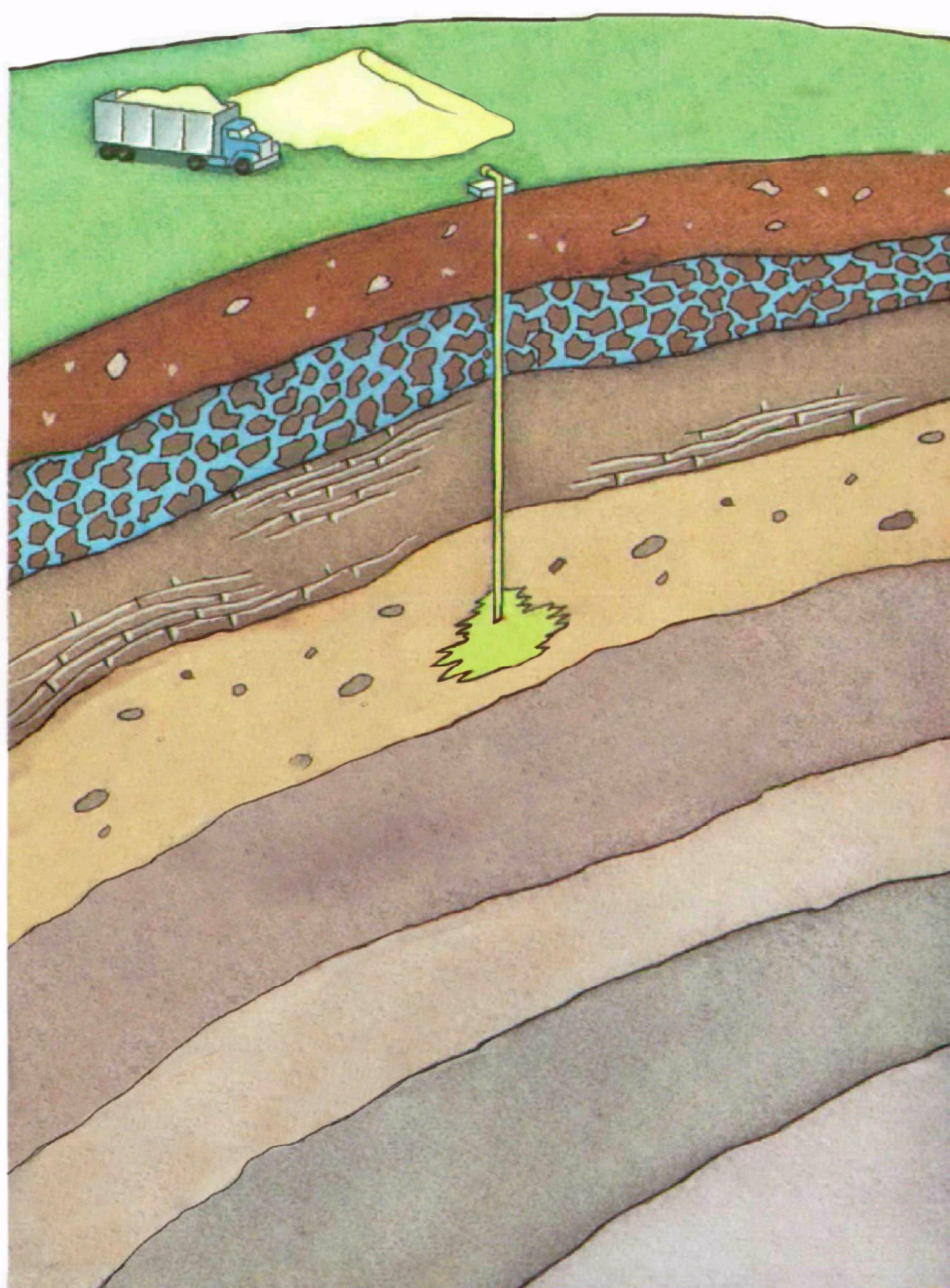
United States  
Environmental Protection  
Agency

EPA 813-F-94-004  
July 1994

Office of Water (4602)



## **Class III Injection Wells and Your Drinking Water**



**M**ore than 89 percent of U.S. public water supply systems draw some or all of their drinking water from sources found underground in rock, sand, and gravel. Ground water also feeds rivers, lakes, and streams used for drinking water. Ground water has no respect for state boundaries. It continually moves, sometimes recharging surface waters hundreds of miles away from where it started.

Most ground water used for drinking is located near the earth's surface and is easily contaminated. Of major concern is the potential contamination of underground sources of drinking water (USDWs) by any of the hundreds of thousands of injection wells nationwide. Injection wells dispose of approximately 11 percent of the nation's fluid waste.

The U.S. Environmental Protection Agency (EPA) is working in partnership with state and local governments to prevent injection wells from contaminating your drinking water resources. You can help by learning about EPA's Underground Injection Control (UIC) program so that you can identify injection wells in your community that may contaminate your drinking water.

Basically, injection wells are man-made or improved “holes” in the ground, which are deeper than their widest surface dimension and are used to discharge or dispose of fluids underground. When properly sited, constructed, and operated, injection wells can be an effective and environmentally safe means of fluid waste disposal. There are many different types of injection wells, but they are all similar in their basic function.

## **What is a Class III Well?**

Class III wells inject super-hot steam or water into mineral formations, which dissolves or loosens minerals, which are then pumped to the surface and extracted. Generally, the fluid is treated and reinjected into the same formation. More than 50 percent of the salt and 80 percent of the uranium extracted in the U.S. are produced this way. Class III wells comprise eight percent of injection wells in the U.S.

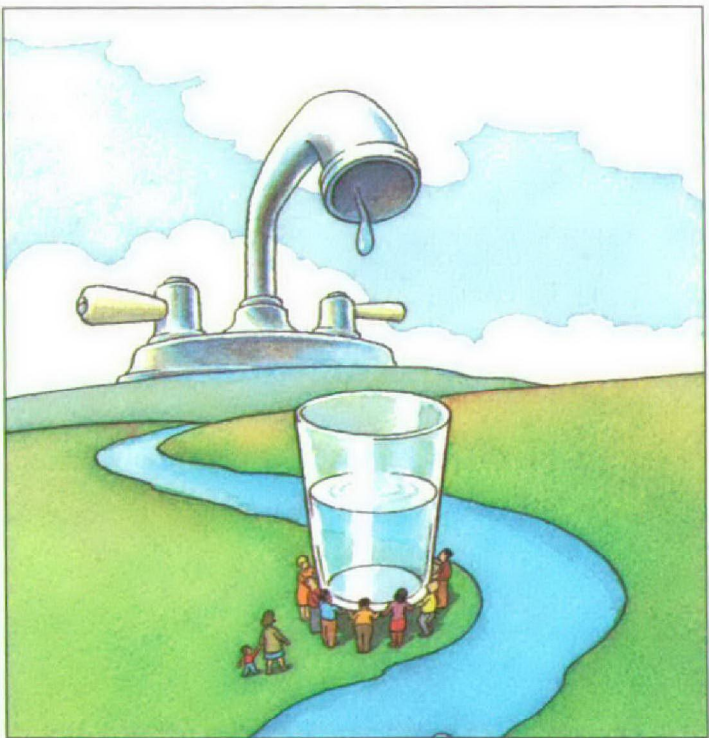
---

**Under the UIC Program, EPA and the states regulate more than 400,000 injection wells. Class III wells comprise 8 percent of the injection wells in the U.S.**

---

Class III wells are used to recover salt, sulfur, or uranium. Operators of Class III injection wells can use either of the following safe and environmentally sound techniques to extract minerals from the ground:

- **Solution Mining:** used primarily to extract salt and sulfur from underground formations. Well operators inject water to extract salt and super-heated steam to melt and extract sulfur.
- **In Situ Leaching:** commonly used to extract uranium, and in some instances gold and copper from the ground. A non-toxic chemical solution is circulated, which dissolves or “leaches” mineral particles from the sand grains in the ore body.





## How Does EPA Protect your Drinking Water from Class III Wells?

Federal and state Class III regulations are designed to prevent the endangerment of underground drinking water sources. Class III wells must conform to state and federal construction standards. These standards ensure that fluids injected by Class III wells do not move into and contaminate underground sources of drinking water. They require Class III well operators to:

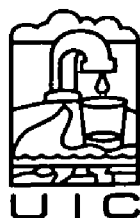
- case and cement their wells to prevent the migration of fluids into an underground drinking water source;
- never inject fluids between the outer-most casing and the well bore; and
- test the well casing for leaks at least once every five years.



Many states regulate Class III wells more stringently than do the federal authorities. For example, the states may require annual inspections of Class III injection wells and mechanical integrity tests prior to a well's initial operation.

## **How Can You Help?**

Federal and state UIC programs help protect drinking water resources, but must have local support. Local governments and citizens themselves often are in the best position (and have the greatest incentive) to ensure that injection wells do not endanger underground drinking water sources, public health, and the environment. To find out more about the UIC program and what you can do to protect your drinking water, contact your EPA Regional Office.



For information contact:

**Region 1**

Ground Water Management Section  
John F. Kennedy Federal Building  
One Congress Street  
Boston, MA 02203 (617)565-3615

**Region 2**

Underground Injection Control Section  
26 Federal Plaza, Room 853  
New York, NY 10278 (212)264-1547

**Region 3**

Underground Injection Control Section  
841 Chestnut Building (3WM43)  
Philadelphia, PA 1910 (215)597-9928

**Region 4**

Underground Injection Control Section  
(GWP-3)  
345 Courtland Street N E  
Atlanta, GA 30365 (404)347-3379

**Region 5**

Underground Injection Control Section  
(WD-17J)  
77 W. Jackson Street  
Chicago, IL 60604 (312)886-1492

**Region 6**

Underground Injection Control Program  
(6W-SE)  
1445 Ross Avenue  
Dallas, TX 75202-2733 (214)655-7160 or  
(214)655-7165

**Region 7**

Underground Injection Control Section  
726 Minnesota Avenue  
Kansas City, KS 66101 (913)551-7369

**Region 8**

UIC Program/Enforcement Section  
(8WM-DW)  
999 18th Street - Suite 500  
Denver, CO 80202-2466 (303)293-1413

**Region 9**

Source Water Protection Section (W-6-2)  
75 Hawthorne Street  
San Francisco, CA 94105 (415)744-1838

**Region 10**

Ground Water Section (WD-133)  
1200 Sixth Avenue  
Seattle, WA 98101 (206)553-1369

