United States
Environmental Protection Agency

Office of
Ground Water and
Drinking Water

CLASS V UIC STUDY FACT SHEET
SPECIAL DRAINAGE WELLS

What is a special drainage well?	The specific types of Class V underground injection control (UIC) wells that fit into this category are: pump control valve discharge and potable water tank overflow discharge wells; landslide control wells; swimming pool drainage wells; and dewatering wells. Pump control valve discharges and potable water tank overflows may be drained to the subsurface on occasion, usually when an emergency overflow or bypass procedure takes place. Landslide control wells are used to dewater the subsurface in landslide-prone areas. Swimming pool drainage wells are used to drain swimming pool water to the subsurface for seasonal maintenance or special repairs. Dewatering wells are used at construction sites to lower the water table and keep foundation excavation pits dry. Dewatering wells may also be used at mining sites, where they are known as "connector wells," to drain water from an upper aquifer into a lower one to facilitate mining activities.
What types of fluids are injected into special drainage wells?	Drainage fluids from sources other than direct precipitation. (Wells that receive runoff from direct precipitation are categorized as storm water drainage wells.)
Do injectate constituents exceed drinking water standards at the point of injection?	Injectate characteristics vary among the types of special drainage wells. The injectate from pump control valve discharge and potable water tank overflows are expected to meet all drinking water standards due to the potable nature of the water. The quality of injectate in landslide control wells depends on the quality of the ground water that is being drained to a deeper level in the subsurface. The limited amount of available data indicates that swimming pool drainage well injectate contains coliforms. In addition, the recommended chemical composition of swimming pool water includes total dissolved solid (TDS) levels above the secondary drinking water standard. Available data show that dewatering well injectate typically contains the following constituents above primary drinking water standards or health advisory levels: turbidity, nitrogen-total ammonia, arsenic, cadmium, cyanide, lead, molybdenum, nickel, nitrate, and radium-226. Additionally, the following constituents in dewatering well injectate have been detected above secondary drinking water standards: iron, manganese, TDS, and sulfate. Measured pH levels are also below the lower end of the secondary drinking water standards range.
What are the characteristics of the injection zone of a special drainage well?	Because special drainage wells do not tend to be located in areas with specific geologic characteristics (they are typically located wherever the need for a certain type of drainage exists), generalizations about the injection zone characteristics are very limited. In FL, where swimming pool drainage wells and mine dewatering wells are prevalent, the injection zone is typically karst. In some cases, swimming pool drainage wells inject into saline aquifers. Landslide control wells and dewatering wells inject into deeper aquifers that can accept large volumes of fluid from upper aquifers.
Are there any contamination incidents associated with special drainage wells?	No contamination incidents have been reported for pump control valve discharge and potable water tank overflow discharge wells, landslide control wells, swimming pool drainage wells, or dewatering wells.
Are special drainage wells vulnerable to spills or illicit discharges?	In general, special drainage wells are not highly vulnerable to spills or illicit discharges. The extent of any potential contamination caused by dewatering or landslide control wells is highly dependent upon the characteristics of the construction or mining site or potential landslide location that is being dewatered. Pump control valves and potable water tanks and swimming pools are not especially vulnerable to spills or illicit discharges.
How many special drainage wells exist in the United States?	There are 1,944 documented special drainage wells and more than 3,750 special drainage wells estimated to exist in the United States.
Where are special drainage wells located within the United States?	The wells are documented in 13 states, although 97 percent are located in FL (782) and IN (1,102).
How are special drainage wells regulated in states with the largest number of this type of well?	*Permit by rule*: ID, IN, OH *Area permit*: FL (single family swimming pools only) *Individual permit*: AK, FL, OR
Where can I obtain additional information on special drainage wells?	For general information, contact the Safe Drinking Water Hotline, toll-free 800-426-4791. The Safe Drinking Water Hotline is open Monday through Friday, excluding federal holidays, from 9:00 a.m. to 5:30 p.m. Eastern Standard Time. For technical inquiries, contact Amber Moreen, Underground Injection Control Program, Office of Ground Water and Drinking Water (mail code 4606), EPA, 401 M Street, SW, Washington, D.C., 20460. Phone: 202-260-4891. E-mail: moreen.amber@epa.gov. The complete Class V UIC Study (EPA/816-R-99-014, September 1999), which includes a volume addressing special drainage wells (Volume 14), can be found at http://www.epa.gov/OGWDW/uic/cl5study.html.