United States
Environmental Protection Agency

Office of
Ground Water and
Drinking Water

CLASS V UIC STUDY FACT SHEET
STORM WATER DRAINAGE WELLS

What is a storm water drainage well?	Storm water drainage wells are Class V underground injection control (UIC) wells used to remove storm water or urban runoff from impervious surfaces such as roadways, roofs, and paved surfaces to prevent flooding, infiltration into basements, etc. The primary types of storm water drainage wells are bored wells, dug wells, and improved sinkholes. In addition, "lake level control wells" are used to drain lakes to prevent overflow following heavy precipitation.
What types of fluids are injected into storm water drainage wells?	Primarily rain water and melted snow runoff.
Do injectate constituents exceed drinking water standards at the point of injection?	Available sampling data indicate that concentrations of antimony, arsenic, beryllium, cadmium, chromium, cyanide, lead, mercury, nickel, nitrate, selenium, and certain organics in storm water runoff have exceeded primary drinking water standards. Available sampling data also show that concentrations of aluminum, chloride, copper, iron, manganese, total dissolved solids, zinc, and methyl tert-butyl ether have exceeded secondary drinking water standards or health advisory levels. Water quality data from FL indicate that lake level control well injectate has exceeded primary drinking water standards or health advisory levels for turbidity, arsenic, pentachlorophenol, and fecal coliforms, as well as secondary drinking water standards for iron, manganese, pH, and color.
What are the characteristics of the injection zone of a storm water drainage well?	In general, the point of injection for most storm water drainage wells is into sandy, porous soils, a permeable coarse-grained unit, karst, or a fractured unit because these types of formations can readily accept large volumes of fluids.
Are there any contamination incidents associated with storm water drainage wells?	Contamination related to storm water drainage wells has been reported to various degrees in OH, KS, WI, CA, WA, AZ, OK, TN, NY, IN, FL, KY, and MD. Several studies, however, do not clearly distinguish contamination from storm water drainage wells versus more general, nonpoint source pollution. Lake level control wells have been associated with two documented contamination incidents in FL.
Are storm water drainage wells vulnerable to spills or illicit discharges?	Storm water drainage wells are generally vulnerable to spills or illicit discharges of hazardous substances, as they are often located in close proximity to roadways, parking lots, and commercial/industrial loading facilities where such substances are handled and potentially released.
How many storm water drainage wells exist in the United States?	There are approximately 71,000 documented storm water drainage wells and approximately 248,000 storm water drainage wells estimated to exist in the United States.
Where are storm water drainage wells located within the United States?	About 81 percent of the documented wells are in seven western states: AZ (14,857), CA (3,743), WA (22,688), OR (4,148), ID (5,359), MT (4,000), and UT (2,890). Five other states contain approximately 15 percent of the total wells: OH (3,036), FL (2,153), MI (1,301), MD (1,678), and HI (2,622). There are approximately 200-250 lake level control wells in FL.
How are storm water drainage wells regulated in states with the largest number of this type of well?	*Permit by rule*: IL, IN, MI, OH, WI (<10 ft. deep and constructed prior to 1994), MT, WY, ND, SD, UT, CO, ID (< 18 ft. deep), OR, WA, KS, TN, RI *Individual permit/registration system*: AZ, CA, HI, ID (≥18 ft. deep), AL, FL, TX, NH, MD, NE, NY *Banned*: NC, GA, WI (any new well since 1994 and wells >10 ft. deep since the 1930's), MN (for "wells" that reach ground water)
Where can I obtain additional information on storm water 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 storm water drainage wells (Volume 3), can be found at http://www.epa.gov/OGWDW/uic/cl5study.html.