

# When Is Storm Water Infiltration Regulated Under SDWA?

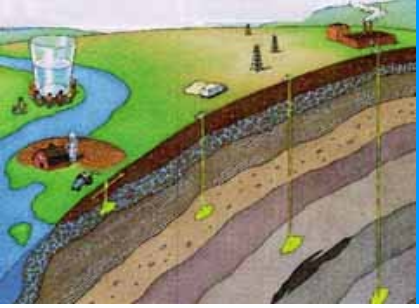
EPA Office of Water  
Office of Ground Water and Drinking Water

Ground Water Protection Council  
Source Water Workgroup



July 12, 2011





# Overview

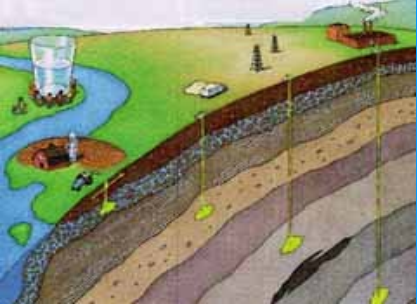
- Green Infrastructure
- UIC Class V Clarification Guide
- Specific Infiltration Techniques –  
Yes or No?

# UIC and GI

What is GI?

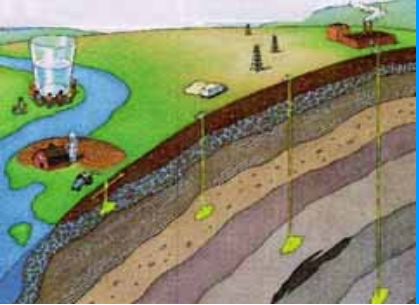


Green Infrastructure



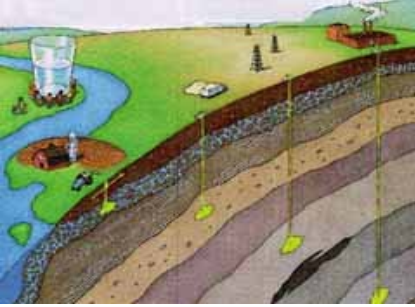
# Infiltration

- Infiltration of stormwater is a key component of GI. It is the primary mechanism for managing stormwater to provide hydrologic stability and water quality protection under the Clean Water Act (CWA).
- Could be regulated as a potential cause of groundwater contamination under the Safe Drinking Water Act (SDWA).
- OGWDW recognizes the role of infiltration in the natural environmental.
- OGWDW began working with OWM about 2 years ago to resolve potential conflicts between the two programs (OWMs goal to promote infiltrate to protect surface water and OGWDWs efforts to regulate infiltration to protect ground water and Source Water).



# Class V Well Definition (SDWA)

- Class V wells are shallow wells used to place a variety of fluids directly below the land surface.
- By definition, a well is “any bored, drilled, driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system”.
- An “injection well” is a “well” into which “fluids” are being injected (40 CFR §144.3).



# EPA Clarification



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUN 13 2008

OFFICE OF  
WATER

## MEMORANDUM

**SUBJECT:** Clarification on which stormwater infiltration practices/technologies have the potential to be regulated as "Class V" wells by the Underground Injection Control Program

**TO:** Water Division Directors, Regions 1-10

**FROM:** Linda Boomazian, Director  
Water Permits Division (MC 4203M)  
Steve Hearn, Director  
Drinking Water Protection Division (MC 4606M)

Over the past several years stormwater infiltration has become an increasingly effective tool in the management of stormwater runoff. Although primary stormwater management responsibilities within EPA fall under the Clean Water Act (CWA), the infiltration of stormwater is, in some cases, regulated under the Safe Drinking Water Act (SDWA) with the goal of protecting underground sources of drinking water (USDWs). Surface and ground water protection requires effective integration between the overlapping programs. This memorandum is a step forward in that effort and is meant to provide clarification on stormwater implementation and green infrastructure, in particular under the CWA, which is consistent with the requirements of the SDWA's Underground Injection Control (UIC) Program.

In April 2007, EPA entered into a collaborative partnership with four national groups (the Association of State and Interstate Water Pollution Control Administrators, the Low Impact Development Center, the National Association of Clean Water Agencies, and the Natural Resources Defense Council) to promote green infrastructure as a cost-effective, sustainable, and environmentally friendly approach to stormwater management. The primary goals of this collaborative effort are to reduce runoff volumes and sewer overflow events through the use of green infrastructure wet weather management practices.

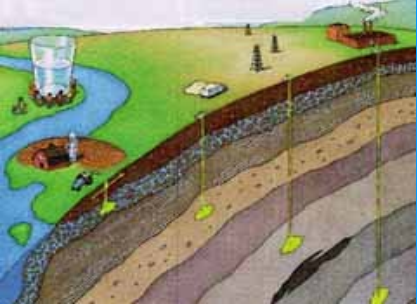
Within the context of this collaborative partnership, green infrastructure includes a suite of management practices that use soils and vegetation for infiltration, treatment, and evapotranspiration of stormwater. Rain gardens, vegetated swales, riparian buffers and porous pavements are all common examples of green infrastructure techniques that capture and treat stormwater runoff close to its source. Green infrastructure management practices typically do not include commercially manufactured or proprietary infiltration

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- Memo & guide issued June 13, 2008 by EPA
- Clarifies which infiltration practices are generally considered class V wells
- Notes procedures for complying with UIC requirements

# Rain Gardens & Bioretention Areas

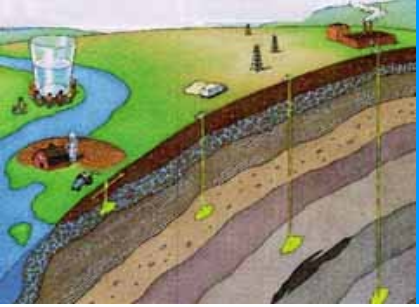


**Description:** Rain gardens and bioretention areas are landscaping features adapted to provide on-site infiltration and treatment of stormwater runoff using soils and vegetation. They are commonly located within small pockets of residential land where surface runoff is directed into shallow, landscaped depressions; or, in more urbanized settings, to parking lot islands and green street applications.

**Is this Practice/Technology Generally Considered a Class V Well?**      No.



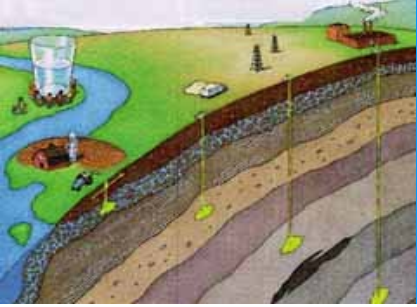
# Vegetated Swales



**Description:** Swales (e.g., grassed channels, dry swales, wet swales, or bioswales) are vegetated, open-channel management practices designed specifically to treat and attenuate stormwater runoff. As stormwater runoff flows along these channels, vegetation slows the water to allow sedimentation, filtering through a subsoil matrix, and/or infiltration into the underlying soils.

**Is this Practice/Technology Generally Considered a Class V Well?** No.

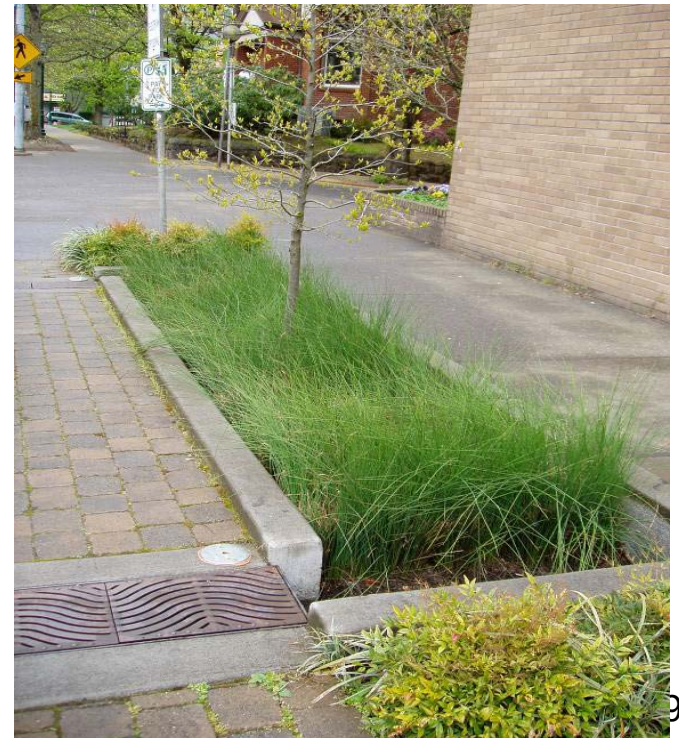




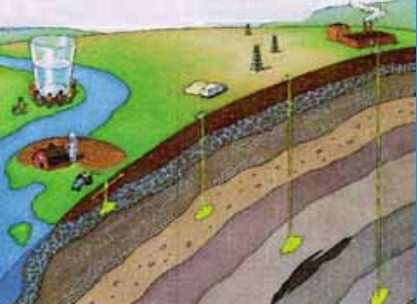
# Tree Boxes and Planter Boxes

**Description:** Tree boxes and planter boxes are generally found in the right-of-ways alongside city streets. These areas provide permeable areas where stormwater can infiltrate. The sizes of these boxes can vary considerably.

**Is this Practice/Technology Generally Considered a Class V Well?** No.



# Permeable Pavement



**Description:** Permeable pavement is a porous or pervious pavement surface, often built with an underlying stone reservoir that temporarily stores surface runoff before it infiltrates into the subsoil. Permeable pavement is an environmentally preferable alternative to traditional pavement that allows stormwater to infiltrate into the subsoil. There are various types of permeable surfaces, including permeable asphalt, permeable concrete and even grass or permeable pavers.

**Is this Practice/Technology Generally Considered a Class V Well?** No.

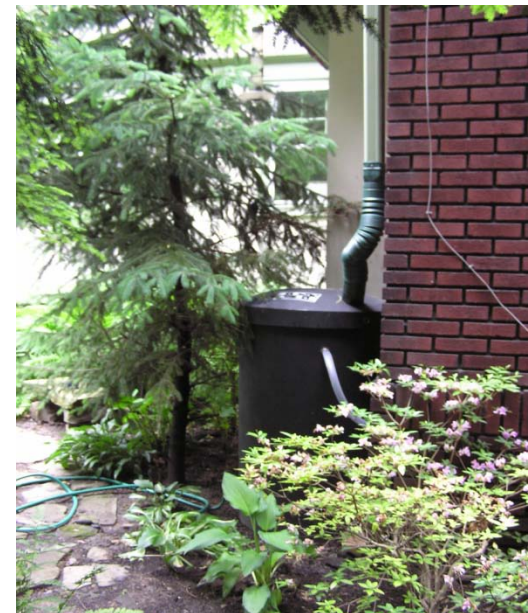


# Downspout Disconnection

**Description:** A practice where downspouts are redirected from sewer inlets to permeable surfaces where runoff can infiltrate.

## Is this Practice/Technology Generally Considered a Class V Well?

In certain circumstances, for example, when downspout runoff is directed towards vegetated/pervious areas or is captured in cisterns or rain-barrels for reuse, these practices generally would not be considered Class V wells. But.....





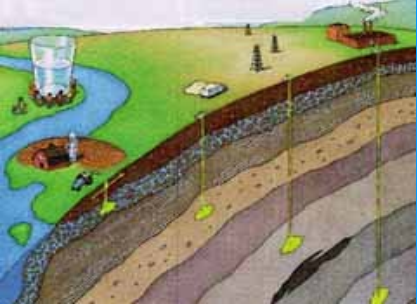
# Commercially Manufactured Stormwater Infiltration Devices

**Description:** Includes a variety of pre-cast or pre-built proprietary subsurface detention vaults, chambers or other devices designed to capture and infiltrate stormwater runoff.

**Is this Practice/Technology Generally Considered a Class V Well?**

Yes. These devices are generally considered Class V wells since their designs often meet the Class V definition of subsurface fluid distribution system.





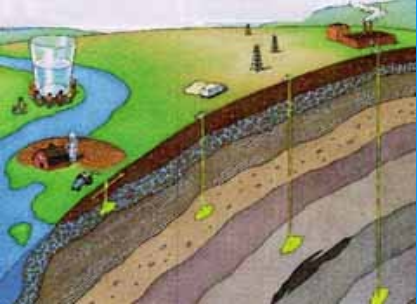
# Drywells, Seepage Pits, Improved Sinkholes

**Description:** Includes any bored, drilled, driven, or dug shaft or naturally occurring hole where stormwater is infiltrated.

## **Is this Practice/Technology Generally Considered a Class V Well?**

Yes. These devices are generally considered Class V wells if stormwater is directed to any bored, drilled, driven shaft, or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system.



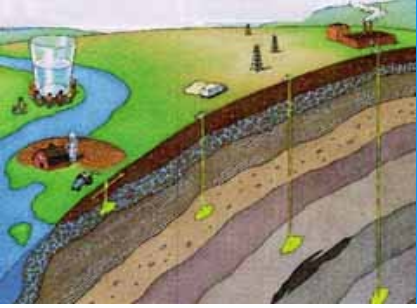


# Infiltration Trenches

**Description:** An infiltration trench is a rock-filled trench designed to receive and infiltrate stormwater runoff. Runoff may or may not pass through one or more pretreatment measures, such as a swale, prior to entering the trench. Within the trench, runoff is stored in the void space between the stones and gradually infiltrates into the soil matrix. There are a number of different design variations.

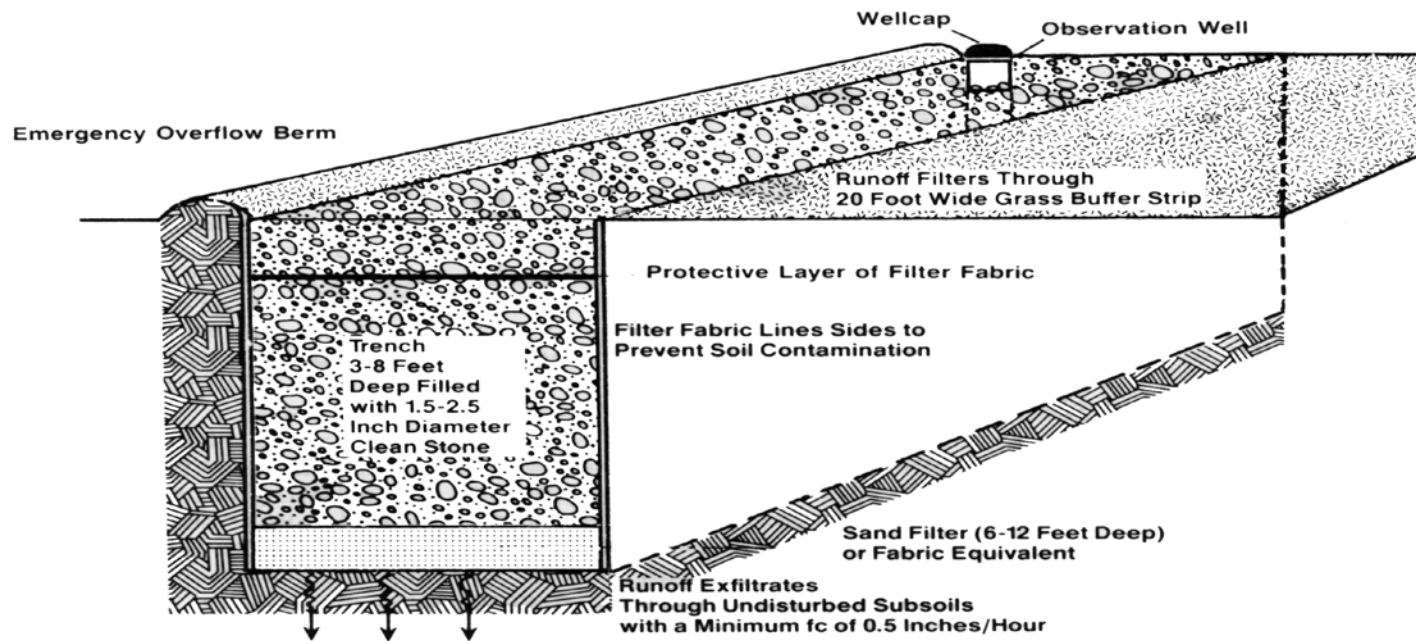
**Is this Practice/Technology Generally Considered a Class V Well?** In certain circumstances, for example, if an infiltration trench is “deeper than its widest surface dimension,” or includes an assemblage of perforated pipes, drain tiles, or other similar mechanisms, it would be considered a Class V injection well.

# Infiltration Trench



Class V Well?

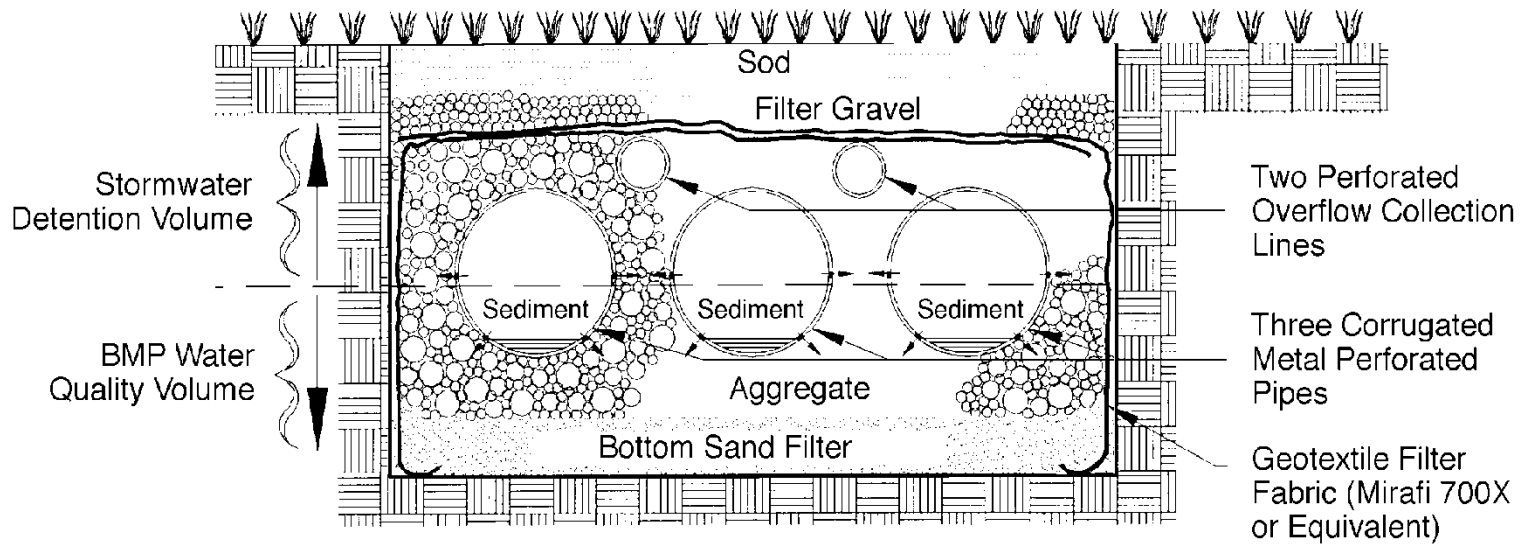
# Infiltration Trench



Class V Well?

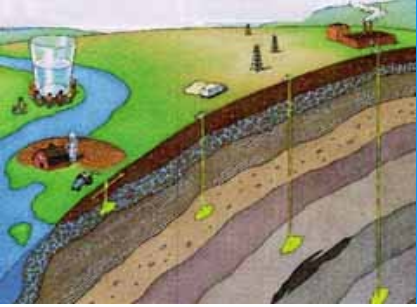
No. Wider than deep, and no subsurface distribution system.

# Infiltration Trench



Class V Well?

Yes, subsurface distribution system



# Class V Wells

Class V wells are authorized by rule. Owners and operators submit inventory information; and they must construct, operate, and close Class V well in a manner that does not endanger USDWs.

Facility name and location

Name and address of legal contact

Ownership of property

Nature and type of injection well(s)

Operating status of injection well(s)

UIC Class V Well Identification Guide can be found at:

[http://www.epa.gov/npdes/pubs/memo\\_gi\\_classvwells.pdf](http://www.epa.gov/npdes/pubs/memo_gi_classvwells.pdf)

