

US EPA ARCHIVE DOCUMENT



Municipal Storm Water and Ground Water Discharge Regulations in California

According to the 1996 National Water Quality Inventory, a biennial summary of State surveys of water quality, approximately 40 percent of surveyed U.S. waterbodies are impaired by pollution and do not meet water quality standards. A leading source of this impairment is polluted runoff. To reduce the impacts of polluted runoff, the Environmental Protection Agency (EPA) Storm Water program has developed a series of rules for municipalities and construction sites, requiring prevention of contamination of runoff, and retention of runoff where possible.

Urban and construction-related runoff has been documented to contain numerous substances known to have toxic or pathogenic properties, such as motor vehicle fluids, pesticides, heavy metals, and fecal coliform. Spilled fuel, solvents, waste oil, paints, and other maintenance fluids pose a risk to the environment but may be especially harmful if they enter someone's drinking water supply. Small amounts of some substances may cumulatively degrade an aquifer, if a significant proportion of contaminated runoff is percolated to the water table.

The percolation of contaminated runoff can cause unacceptable consequences to ground water resources. To prevent the trading of pollution from surface water to ground water, EPA Region 9 has prepared this fact sheet for municipalities contemplating the use of injection wells as a means of managing storm water.

The UIC regulations were promulgated to regulate subsurface disposal of fluids through drains, pipes, and other constructed conveyances that are intended to permanently emplace fluid below ground surface. Drywells, unlined sumps, seepage pits, and infiltration galleries are some of the terms used to describe the subcategory of injection wells known as shallow Class V injection wells. Municipalities who utilize injection wells as a means of storm water management need to be cognizant of the regulations applicable to this practice.

Storm water wells can be a community asset or liability. One incident of contamination could cause millions of dollars of damage to the public water system and to the local economy. Complying with the regulation may be as simple as reporting the number of wells you operate. Implementing additional management measures could prevent pollution and protect precious water resources.



Inside:

- Do I need to get a Permit?
- How do I Comply?

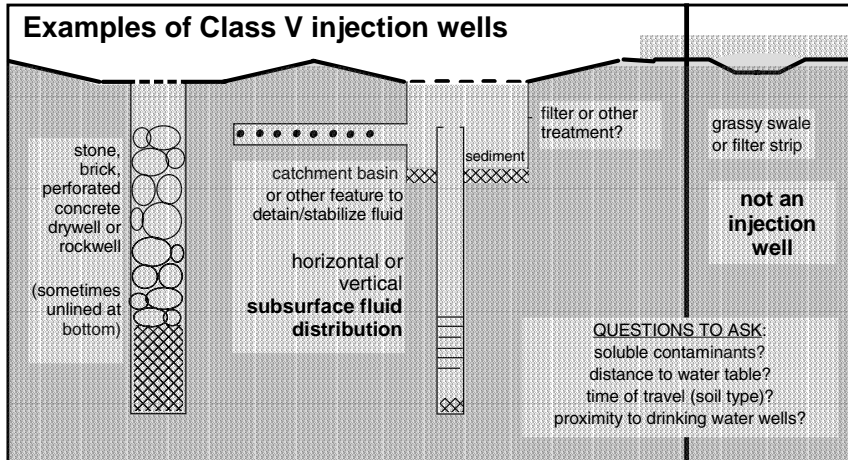


GUIDELINES FOR RULE AUTHORIZATION

1. All wastes are managed.
2. Dilution is not a method of treatment.
3. All disposal points are known.
4. All receiving waters are known.
5. Safe operation of well(s) is assured with routine inspection, maintenance and monitoring.
6. Close wells which cannot demonstrate compliance.

What is a Class V injection well?

STORM WATER MANAGEMENT DEVICES



All percolation, deep or shallow, poses some environmental risk. Best management practices, pretreatment, and exposure to the elements all have a role in reducing storm water contaminants, but they provide no guarantee. Storm water programs can't eliminate risk, but they can significantly reduce it.

What are the requirements in California for owners and operators of Class V injection wells?

1. **Submit an Inventory Form** to EPA for all Class V injection wells. The inventory form registers the ownership and liability for the wells and notes their approximate location. Complying with the inventory requirement means you are "authorized by rule" to continue injecting unless EPA requires more information, a permit, or closure of your well(s). For a copy of the inventory form, contact EPA Region 9. *40 CFR 144.26*
2. Respond to requests for additional information about your well(s). If EPA suspects that your well(s) may be threatening an underground source of drinking water, it may require you to further investigate the location and use of your well(s) relevant to area aquifers and land uses. *40 CFR 144.27*
3. If requested by EPA, apply for and comply with an injection permit. *40 CFR 144.25*
4. Close any wells that are suspected or likely to cause contamination of underground sources of drinking water. *40 CFR part 144.89*
5. No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons. *40 CFR 144.12*

...FROM THE REGULATIONS

(Injection) Well means: A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.

Subsurface fluid distribution system means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground. *40 CFR 144.3*

DO I NEED A PERMIT?

EPA is the direct implementation agency for Class V injection wells in California. This means that they have the responsibility for collecting inventory data and determining which wells pose a risk that warrants further federal action, up to and including closure of endangering wells. The EPA office in San Francisco collects and maintains a database of all submitted inventory information.

Currently EPA does not have any permits for municipal storm water injection wells in California. This fact sheet is the first step in alerting municipalities of their legal obligations. Factors influencing EPA's decision to require a permit could include whether or not area ground water is a drinking water supply; its hydrogeologic susceptibility; land use practices and population density; or any documented contamination incidents linked to storm water injection wells.

Although California does not have delegation for the UIC program (like the NPDES program), the Water Code enables the Regional Water Quality Control Boards to prepare Waste Discharge Requirements for any discharge that may impair beneficial uses of waters of the state.

Local governments may set standards that are more stringent than EPA regulations.



Evaluating Storm Drain Failure

Injection/infiltration contaminates receiving ground water or surface water. Possible causes: receives human or animal waste, or chemical waste, through normal road use or illicit disposal. Constructed in a manner that there is inadequate time of travel between the “bottom” of the injection well/infiltration device and the receiving water body. Not maintained, so that heavily contaminated sediment from dry weather flow is flushed to the water table when wet season begins. Constructed hydrogeologically close to water body (inadequate setbacks.)

Clogs/doesn't percolate. Possible causes: Not maintained, clogged with solids. Illicit use for grease trap, waste oil or other viscous substance disposal. Constructed in soils with percolation rates less than 0.5 minutes per inch. Heavy clay, silty, or saturated soils. Constructed with too little setback to other fluid sources such as septic systems, leaking sewer lines, or “losing” streams (where surface water recharges ground water.)

IF AN INJECTION WELL NEEDS TO BE CLOSED:

The regulations specify minimum requirements for closure of an injection well: §144.89. You must plug or otherwise close the well in a manner that complies with the prohibition of fluid movement standard in §144.12 and summarized in §144.82(a). If the Regional Water Quality Control Board or other local agency has more stringent closure requirements, you should comply with those requirements as well. You must dispose or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to your well in accordance with all applicable Federal, State, and local regulations and requirements, as in §144.82 (b).

EPA Region 9 requires that site characterization and closure of shallow injection wells where hazardous or toxic materials may be present be overseen and approved by a hazardous materials regulator from the local or state government (or EPA) and be performed by a qualified environmental professional.

Federal closure guidance is available. Contact EPA Region 9's Ground Water Office (see back page for numbers.)

Best Management Practices

Standard program elements recommended for storm drains leading to surface waters include:

- Public education and public involvement
- Illicit discharge detection and elimination
- Construction/post-construction site runoff control
- Pollution prevention/Good housekeeping

The same concepts apply to ground water discharges; **the cleaner the runoff, the safer the disposal.** Additional considerations for protecting underground sources of drinking water should be based on the value and vulnerability of the resource.

Is ground water a source of drinking water, through wells or through discharge to a surface water body that is tapped? Has the area been designated as a wellhead protection area, sole source aquifer, or source water area by the public water system?

Structural BMPs:

EPA has no design requirements for storm water injection wells that inject into or above the water table. Deeper injection through and below drinking water supply aquifers generally requires a permit to insure mechanical integrity and pollution prevention.

Shallow infiltration is generally environmentally safer than deep, but it is no guarantee that contamination will be prevented.

Pretreatment is needed where soluble contaminants are a concern. Sedimentation and absorbent materials may not remove dissolved pesticides, solvents, and some motor vehicle fluids.

Every injection well and infiltration device should be accessible for routine inspection and maintenance.

Non-structural BMPs

Evaluate the soils, geology, and water table. Develop an understanding of how much water can safely be land-applied to reflect natural recharge patterns. Account for other sources of infiltration that might affect subterranean flow and cause “breakouts” in low spots, or landslides.

Establish setbacks that provide sufficient time of travel in unsaturated soils for pollutant removal (and/or capture if materials spill occurs.)

Map all injection wells/infiltration devices; keep design and maintenance records for each one. Layer maps with land uses, sewer maps, and other data that might influence drainage system performance.

Assess regional or watershed impacts from injected/infiltrated fluid through monitoring programs. Depending on the proximity of drained areas to drinking water wells, collaborate with drinking water suppliers to analyze raw well water quality for early detection of runoff impacts.

For more information:

EPA National Stormwater NPDES program:
http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm?program_id=6 or
<http://www.epa.gov/npdes/menuofbmps/>

BMPs specifically for ground water:
<http://www.epa.gov/reg3wapd/uic/pdf/stormwater.pdf>

Drinking Water Source Protection BMPs:
<http://www.epa.gov/safewater/protect/swpbmp.html>

For 1999 EPA summary of stormwater injection practices nationally:
<http://www.epa.gov/safewater/uic/classv/volume3.pdf>

For EPA's Environmental Technology Verification (ETV) project, which is testing stormwater treatment technologies:
<http://www.epa.gov/etv/index.htm>

California State Water Resources Control Board website: www.swrcb.ca.gov

To obtain EPA inventory form, write to EPA at the return address below, or forms can be emailed: send email to janes.elizabeth@epa.gov

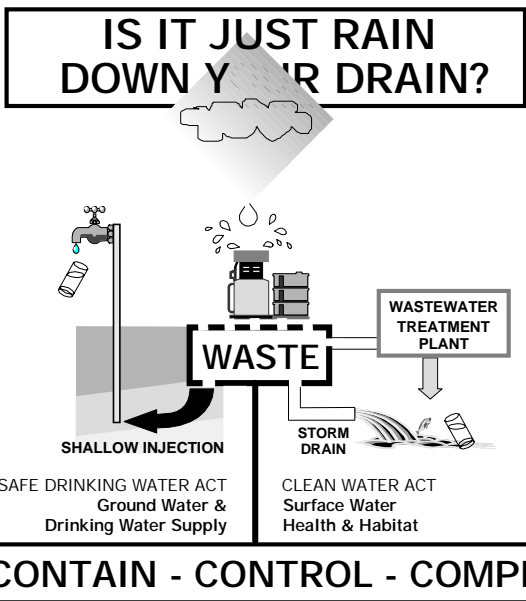
Questions about this guidance?
Call (415) 972-3537

WHAT IF IT'S NOT THE DEPARTMENT'S INJECTION WELL?

Injection wells on private property (except for those strictly intended for roof runoff, or less than 2000 gpd sewage treatment) are subject to these regulations. Injection wells have been used at certain facilities to evade sewer pretreatment restrictions and other discharge limits. If you know or suspect of ground water problems arising from illicit (or hazardous) injection wells, please call the number above or your local/county hazardous materials agency. City departments are also recommended to seek their own authority to require abatement of such systems.

U.S. Environmental Protection Agency, Region 9
Underground Injection Control Program (WTR-9)
75 Hawthorne Street
San Francisco, California 94105-3109
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