



Drinking Water Program

Underground Injection Control Regulations & Public Water Systems

Introduction

The [Underground Injection Control \(UIC\) Regulations](#) protect ground water quality by regulating the disposal of fluids into the subsurface. Most UIC wells or injection wells are simple devices that allow fluids into the shallow subsurface under the force of gravity. The potential for ground water contamination from UIC wells exists and is dependent upon the well construction and location, the volume and quality of the fluids injected and the hydrogeologic setting.

The UIC Program, authorized by the Safe Drinking Water Act, is administered under [Title 40 Code of Federal Regulations \(CFR\) part 144](#). Massachusetts Department of Environmental Protection (MassDEP) was delegated authority by the Environmental Protection Agency (EPA) in 1982 to administer the program. State regulations 310 CMR 27.00 (Underground Injection Control Regulations) are used to administer the program.

What are Injection Wells?

Injection wells are subsurface structures used to discharge fluids. These structures include man-made or improved holes in the ground that are deeper than they are wide at the ground surface, or improved sinkholes, or sub-surface fluid distribution systems (drainfield). They are used to release or dispose of fluids underground. Examples include drywells, drainfields and infiltration trenches that have been backfilled with permeable material that is greater than 18 inches in vertical thickness. A fluid is any flowing matter, regardless of whether it is in a semisolid, liquid, sludge, or gaseous state. The fluid may be injected for a beneficial use (e.g. ground water recharge or at an aquifer remediation site) or potentially harmful (e.g. misuse of a septic system by accepting fluids other than sanitary waste).

EPA groups injection wells into six classes, depending on the type of waste to be disposed in them:

Classes 1 through 3 – are all banned in Massachusetts. See last page for descriptions of these well types.

Class 4 - are prohibited in Massachusetts except for Class IV wells installed at a Massachusetts Contingency Plan (MCP) oil or hazardous material release site under the direction of a Massachusetts Licensed Site Professional (LSP), or at a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or Resource Conservation and Recovery Act (RCRA) facility that reinjects treated groundwater into the same formation.

Class 5 - all other injection practices not included in the other classes. Class 5 injection wells, the most common injection well in Massachusetts, are generally shallow wells used to discharge fluids into or above a ground water aquifer. In many cases, these aquifers are shallow and unconfined. Class 5 wells include but are not limited to the

following types of discharge (well types in **bold** font are most common at public water supply facilities):

- aquifer remediation
 - effluent from a heat exchanger
 - non-contact cooling water
 - **stormwater runoff**
 - **water purification backwash**
 - uncontaminated water used to replenish or recharge an aquifer
 - uncontaminated fresh water used to create a salt water intrusion barrier to prevent the intrusion of salt water into the fresh water
 - on-site subsurface sewage disposal systems regulated under MassDEP Groundwater Discharge Permitting Program or the Title 5 Program
 - uncontaminated water used for the purpose of subsidence control (i.e. to reduce or eliminate subsidence associated with the overdraft of groundwater)
 - geothermal disposal wells related to electrical generation and geothermal wells used for heating and aquaculture
 - aquaculture wastewater
 - process water and wastewater disposal
 - **groundwater infiltration**
 - swimming pool drainage
 - experimental technology wastewater
 - other types of groundwater discharges regulated under the Groundwater Discharge Permitting Program.
- **Class 6** - wells used for injection of carbon dioxide (CO₂) into underground subsurface rock formations for long-term storage, or geologic sequestration. Geologic sequestration refers to a suite of technologies that may be deployed to reduce CO₂ emissions to the atmosphere to help mitigate climate change. EPA has primacy for the regulation of Class 6 wells in Massachusetts.

Program Requirements

There are two main requirements of the program:

1. A ***non-endangerment*** performance standard must be met, prohibiting injection that allows the movement of fluids containing any contaminant into ground water. In Massachusetts, all ground water is considered a potential source of drinking water.
2. All UIC well owners must provide ***inventory information*** by either permitting or registering (whichever is applicable to the type of discharge) their wells with MassDEP.

The three UIC Registration application forms most commonly submitted by public water suppliers:

- *BRP WS 06 - UIC Registration - Water Purification Discharge Well* (for all subsurface discharges of water filtration backwash or water filtration reject water)
- *BRP WS 06 UIC Registration - Public Water System Special Drainage Well* (includes floor drains, sample sinks, emergency eye wash or shower stations,

- and other subsurface discharges related to water system operations but not including water purification or stormwater discharges)
- *BRP WS 06 - UIC Registration - Stormwater Discharge Well* (for all subsurface stormwater discharges)

For more information regarding the registration of UIC wells in Massachusetts please visit the main MassDEP UIC program web page at:

<http://www.mass.gov/eea/agencies/massdep/water/drinking/underground-injection-control.html> or contact the UIC program at ask.UIC@state.ma.us

UIC Well Classifications Prohibited in Massachusetts

The following UIC well types are prohibited in Massachusetts:

- **Class 1:** receives industrial, commercial, or municipal waste fluids injected beneath the lowermost formation containing an underground source of drinking water (USDW) within 1/4 mile of where the well was dug.
- **Class 2:** receives fluids that are brought to the surface as part of oil or natural gas exploration, recovery, or production.
- **Class 3:** used for mineral extraction and include solution mining and in-situ leaching for minerals.
- **Class 4:** receives radioactive or hazardous waste injected into or above underground sources of drinking water. Class 4 wells are banned in Massachusetts with the exception of aquifer remediation wells as discussed on page 1 of this document.