

CAR.Committee

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Please see attached

DEPARTMENT OF HEALTH

SAFE DRINKING WATER BRANCH

HAWAII UNDERGROUND INJECTION CONTROL (UIC) PROGRAM

Presentation to the
Climate Action and Resilience Committee of the
Maui County Council
September 14, 2020

UIC Program - Purpose

- ▶ To protect underground sources of drinking water (USDW) from being contaminated by injection well wastewater disposal

UIC Program - Authority

- ▶ Hawaii Administrative Rules, Title 11, Chapter 23, Underground Injection Control
- ▶ Hawaii Revised Statutes, Chapter 340E, Safe Drinking Water
- ▶ Not delegated primacy by EPA

Wastewater Disposal Options

- ▶ Wastewater disposal into the ground can be via surface impoundments (ponds), leaching fields, ditches or trenches, and wells
- ▶ Wastewater disposal into the ocean or streams via outfall is another option
- ▶ Out of the options mentioned above, wells can be relatively cost-effective and take up the least amount of space making it a popular option

What is a well?

- ▶ A well is defined as a bored, drilled or driven shaft, or a dug hole, whose depth is greater than its widest surface dimension
- ▶ The depth dimension is typically measured from ground surface to the bottom of the excavation
- ▶ The width dimension is typically the widest open hole dimension
- ▶ “Deeper than it is wide”

What is an injection well?

- ▶ Wells used for the disposal of wastewater are called injection wells.
- ▶ For most injection wells, gravity is used to deliver the effluent into the well. In this case, there is a misconception with the term “injection” since most people see a hypodermic needle at the doctor’s office and therefore see the forcing of wastewater into the ground under pump-induced pressure.
- ▶ Drainage wells (drywells), cesspools, and seepage pits are common examples of large diameter injection wells.
- ▶ Small diameter injection wells are more common at industrial facilities or package sewage treatment plants.

What is the concern over injection wells versus other types of wastewater disposal options into the ground?

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- ▶ Premise: shallower, soil-filtered discharges are generally better for the environment or resource protection than deeper, unfiltered discharges.
- ▶ Injection wells are constructed to greater depths than ponds or leachfields. With greater depths, less filtration of the wastewater occurs before the wastewater enters the groundwater.
- ▶ Deep injection wells can totally bypass any filtration and directly discharge into an aquifer.

How does the UIC program protect drinking water aquifers?

- ▶ By prohibiting polluting wastewater injection into underground sources of drinking water (USDW)
- ▶ By prohibiting deep injection of any kind of wastewater into artesian aquifers
- ▶ Permitting wastewaters which meet applicable treatment standards to be disposed of in areas that do not overlie underground sources of drinking water

UIC line

- ▶ UIC Line delineates, in plan view, the extent of underground sources of drinking water (USDW)
- ▶ A line is made for each of the major islands on USGS 7 ½ minute quadrangle maps
- ▶ The lines encircle the islands and, in many places, are drawn at the shoreline or follow roadways or follow elevation contour lines to facilitate identification
- ▶ Areas above (mauka of) the UIC line delineate USDWs and are where most of the drinking water wells exist and aquifer recharge occurs
- ▶ Areas below (makai of) the UIC line are where sewage and industrial injection wells are allowed

Link to the UIC Maps:

<https://geoportal.hawaii.gov/datasets/underground-injection-control-lines-uic?geometry=-160.886%2C20.565%2C-154.734%2C22.354>

What kind of wastewaters are allowed into UIC wells?

- ▶ Rainfall runoff
- ▶ Sewage
- ▶ Cooling water
- ▶ Manufacturing
- ▶ Food Processing
- ▶ Aquaculture
- ▶ Geothermal
- ▶ Desalination brine

What kind of wastewaters are not allowed?

- ▶ Hazardous waste or wastes that exhibit the characteristics of a hazardous waste
- ▶ Sewage and industrial wastewaters above the UIC line.
Grandfathered sewage injection above line
- ▶ Undescribed discharges that the permit does not identify
- ▶ Wastewater that would be classified as a Class I-IV type injection well
- ▶ Any kind of wastewater, excluding drinking (e.g., potable) water, within $\frac{1}{4}$ mile of a drinking water source

What does the UIC permit do?

- ▶ Establishes reporting, monitoring, operating, and corrective action conditions to prevent or address the potential for drinking water aquifer contamination from occurring
- ▶ Acts like a contract which binds a facility's injection activity to what they propose to do

UIC Permits

- ▶ A UIC permit contains conditions and requirements specific to the injection activity
- ▶ Individual permit
- ▶ Monitoring and reporting conditions typically include
 - ▶ daily flow recording
 - ▶ periodic recorded inspections
 - ▶ annual well performance evaluations
 - ▶ periodic injectant laboratory analyses
- ▶ Needs to be renewed; 5-year max
- ▶ No general permit
- ▶ Permit exclusion for drainage wells

UIC permitting process

- ▶ Submit application at
<https://eha-cloud.doh.hawaii.gov/epermit>
- ▶ \$100 filing fee, government agencies are exempt
- ▶ Public notice, if above the line or significant public interest
- ▶ Approval to construct issued with a final report format
- ▶ Submit Final report
- ▶ Permit to operate issued
- ▶ Permit renewal application submitted
- ▶ Renewed permit issued

UIC Program Contact Information

<https://health.hawaii.gov/sdwb/underground-injection-control-program/>

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