Guam Stormwater Workshop

Session 5

Underground Injection Control




July 27, 2011

Guam's UIC Program

- **<u>Authority:</u> Safe Drinking Water Act (10 GCA §531905(f)**

- Authorizes and directs Guam EPA to establish a UIC program and promulgate its regulations.

Mission of the UIC Program

- The UIC program's mission is to protect the underground sources of drinking water from contamination by regulating the construction and operation of UIC wells and systems.

Regulations

- **Water Resources Development and Operating Regulations 22GAR II-7 §7111 was enacted January 25, 1985 and amended on August 2, 1990 as mandated by 10 GCA §45106.**
- **The UIC Regulations for the Territory of Guam which was adopted on September 25, 1981 regulate Class V injection wells and prohibits other classes. The UIC Program has five (5) classes, Class I thru Class V.**
  - ***Class V wells in Guam are primarily used for the discharge of storm water runoff.***

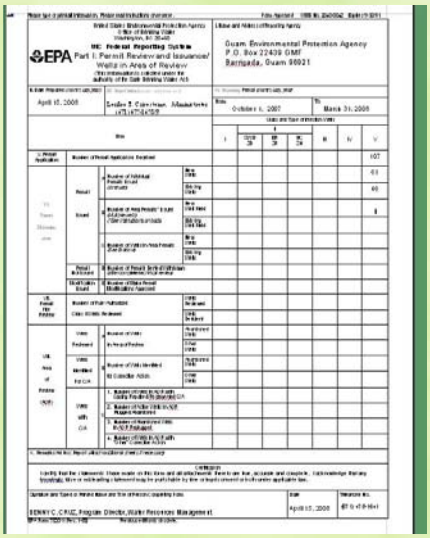
Purpose & Applicability

- **Purpose: 22GAR II-9 §9102 of the UIC Regulation** states that: *The purpose of this program is to prevent contamination and deterioration of Guam's groundwater resources by regulating underground injection wells, which may endanger the quality of present and future sources of drinking water.*

- **Applicability: 22GAR II-9 §9103 of the UIC Regulation** states that: *These regulations apply to and cover Class V injection wells only.*

Primacy

- EPA has granted Guam with primary enforcement authority and responsibility of UIC program for Class V injection wells/systems.
- Guam UIC Program reports to USEPA Region IX on a quarterly basis to provide the program's progress and to demonstrate that the agreement is being followed.


EPA Part I: Permit Review and Issuance/ Wells in Area of Review

Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921

Definitions

What is an Injection well?

Well

any hole that is drilled, dug, or bored at any angle, either cased or uncased by any method into the ground, for the purpose of obtaining water or knowledge of water bearing formations, or for the disposal of surface water drainage or waste materials.

Underground Injection System

a bored, driven, or drilled well, gallery or other systems, and all appurtenances for the purpose of disposing of municipal, industrial and any other wastes including surface water and stormwater through subsurface emplacement of a fluid or fluids.

Classes Cont'd

- **Class V-** Wells used for the emplacement or disposal of storm water or fluids through the following:
  - A well/system that is a manually or mechanically bored, drilled, shaft-driven, and dug hole where the depth is greater than the largest surface dimension.
  - An improved sink hole;
  - A subsurface stormwater drainage distribution well/system;
  - A community septic system that has the capacity to serve twenty or more people per day;
  - Cooling water and air conditioning return flow system;
  - Salt water barrier systems;
  - Wells not covered by Classes I to IV.

Who Should Apply for UIC Permit

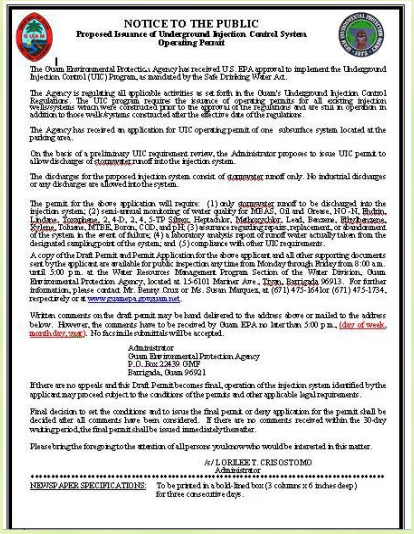
- Facilities with UIC wells/systems which were constructed:
  - prior to the approval of the regulations and are still in operation (existing); and
  - constructed after the effective date of the regulations (new).

Current Requirements of Guam EPA

- Proposed projects securing building permits should apply for the UIC operating permits if:
  - The facility has an **existing non-permitted** UIC wells/systems;
  - The facility has a **proposed/new** UIC wells/systems.

UIC Permit Process

- **Issue UIC draft permits**
  - for review by the applicant and
  - by the public thru the "Notice to the Public" to be advertised for 3 consecutive days for 30-day public comment period
- **Issue final operating permit** – if no comments from the public
- **Public hearing** – if there are comments from the public



NOTICE TO THE PUBLIC
Proposed Issuance of Underground Injection Control System Operating Permit

The Guam Environmental Protection Agency has received U.S. EPA approval to implement the Underground Injection Control (UIC) Program, as mandated by the Safe Drinking Water Act.

The Agency is regulating all applicable activities as set forth in the Guam's Underground Injection Control Regulations. The UIC program requires the issuance of operating permits for all existing injection well/systems which were constructed prior to the approval of the regulations and are still in operation in addition to those wells/systems constructed after the effective date of the regulations.

The Agency has received an application for UIC operating permit of one subsurface system located at the parking area.

On the basis of a preliminary UIC requirement review, the Administrator proposes to issue UIC permit to allow discharge of stormwater runoff into the injection system.

The discharges for the proposed injection system consist of stormwater runoff only. No industrial discharges or any discharges are allowed into the system.

The permit for the above application will require: (1) only stormwater runoff to be discharged into the injection system, (2) semi-annual monitoring of water quality for MBAS, Oil and Grease, HO-N, Hydrin, Lindane, Hexaflone, 2, 4-D, 2, 4, 5-TP Silvex, Heptachlor, Methoxychlor, Lead, Benzene, Ethylbenzene, Xylene, Toluene, MTBE, Boron, COD, and pH; (3) assurance regarding repairs, replacement, or abandonment of the system in the event of failure; (4) a laboratory analytic report of runoff water actually taken from the designated sampling point of the system; and (5) compliance with other UIC requirements.

A copy of the Draft Permit and Permit Application for the above applicant and all other supporting documents sent by the applicant are available for public inspection any time from Monday through Friday from 8:00 a.m. until 5:00 p.m. at the Water Resources Management Program Section of the Water Division, Guam Environmental Protection Agency, located at 15-6101 Mariner Ave., Tiyan, Barrigada 96913. For further information, please contact Mr. Benny Cruz or Ms. Joan Marguez, at (671) 475-1644or (671) 475-1754, respectively or at www.guamepa.govguam.net.

Written comments on the draft permit may be hand delivered to the address above or mailed to the address below. However, the comments have to be received by Guam EPA no later than 5:00 p.m., (day of week, month/day, year). No facsimile submittal will be accepted.

Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921

If there are no appeals and this Draft Permit becomes final, operation of the injection system identified by the applicant may proceed subject to the conditions of the permits and other applicable legal requirements.

Final decision to set the conditions and to issue the final permit or deny application for the permit shall be decided after all comments have been considered. If there are no comments received within the 30-day waiting period, the final permit shall be issued immediately thereafter.

Please bring the foregoing to the attention of all persons you know who would be interested in this matter.

/s/ LORELEI T. CRESOSTOMO
Administrator

NEWSPAPER SPECIFICATIONS: To be printed in a bold-lined box (3 columns x 6 inches deep) for three consecutive days.

Operating Permit Requirements

- Annual Inspection – Guam EPA is authorized to inspect any facility subject to the UIC program. Types and frequency of inspection varies, based on status of wells/system and facility.
- Semi-annual water quality monitoring for 19 chemicals and submission of results to Guam EPA, except for some permittees with special conditions that require monthly, quarterly, and annual monitoring
  - 24-hour reporting for results exceeding the Maximum Contaminant Level.
  - Conduct immediate investigation to determine the source(s) of contamination.
  - Submission of written report with corrective actions.
  - Implementation of the corrective actions

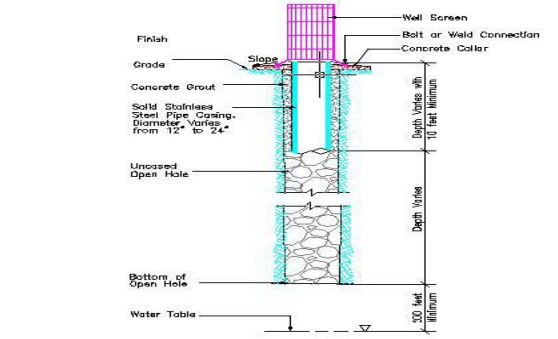
Operating Permit Requirements Cont'd

- Implement the Guam-EPA approved Operation and Maintenance Plan
- Implement the Quality Assurance Program Plan for federally-funded projects
- Implement requirements for inspection, monitoring, recordkeeping, and reporting
- Compliance with other permit requirements and conditions.

Compliance Procedure

- Warnings- issued in writing or verbal
- Notice of Violations. Guam EPA gives conditions and timeline to comply.
- Compliance Order- Guam EPA issues compliance order and may assess penalty provides 15 days to appeal and request for hearing before the board.

Typical UIC Section



TYPICAL CROSS–SECTION OF UNDERGROUND INJECTION CONTROL WELL/SYSTEM ABOVE FINISH GRADE

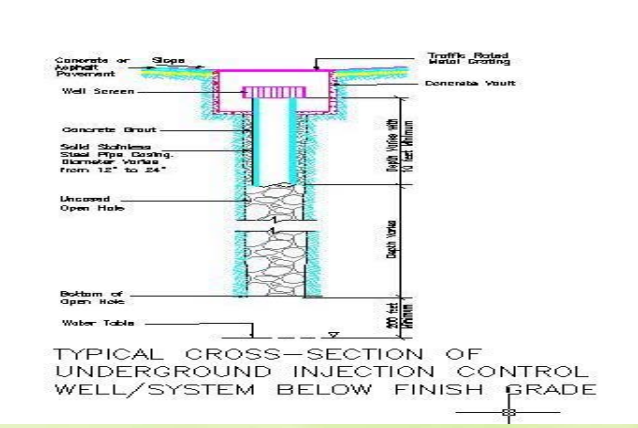
Cased Bored or Drilled Hole

Bored or Drilled UIC Well with Screen Above Grade

Bored or Drilled UIC Wells with Screen Above Grade

Bored or Drilled UIC Wells within a Ponding Basin

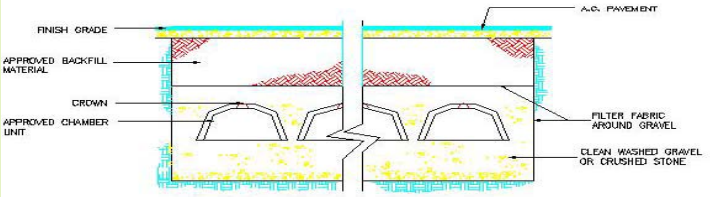
Typical UIC Sections Cont'd



Cased Bored or Drilled Hole

Bored or Drilled UIC Wells in Concrete Vault

Typical UIC Sections Cont'd

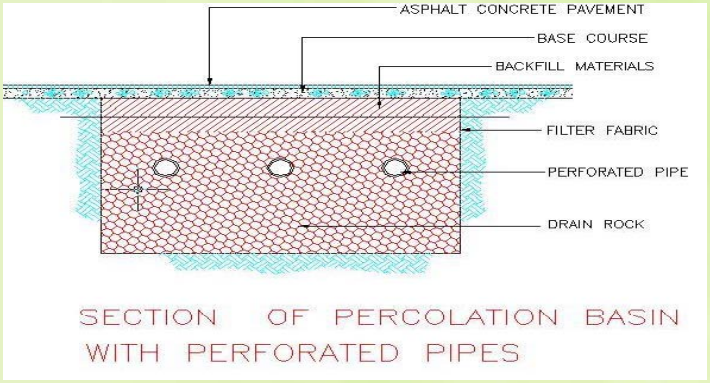


SECTION OF PERCOLATION BASIN WITH CHAMBER

Shallow Type UIC System with Chambers

UIC System with Chambers

Typical UIC Section Cont'd



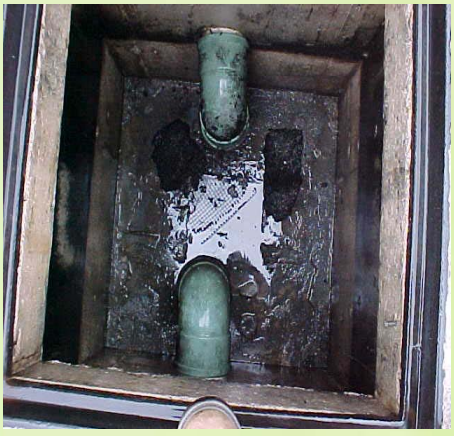
Shallow Type UIC System

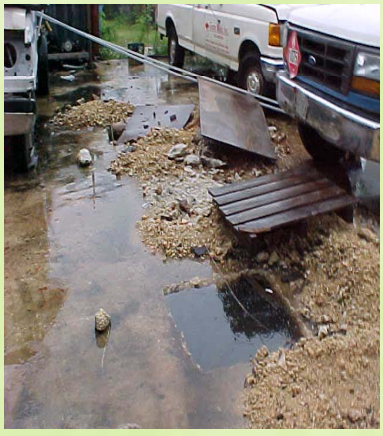
UIC System with Perforated Pipe

Other Type of UIC System

UIC System in an Open Percolation Field

Example of UIC Worst Management Practices





UIC System with Contaminants

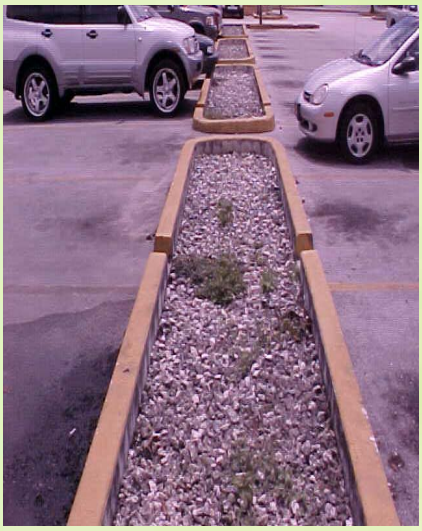
UIC Worst Management Practices Cont'd

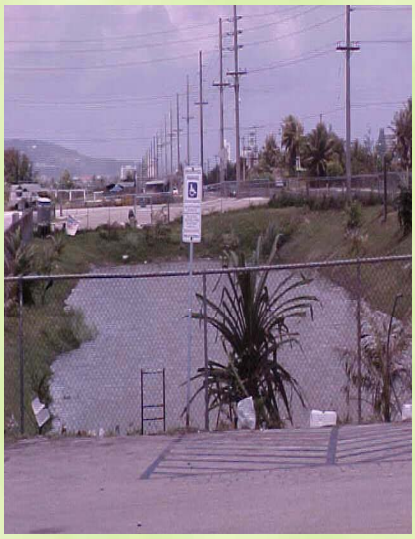
Before & After Protection of UIC

Bad Practices Cont'd

UIC Wells at Work

Example of a Drainage Systems not Regulated by UIC Program





Sole Source Aquifer

- Guam's Northern Water Lens on April 26, 1978 was designated as the Northern Guam Sole Source Aquifer (Federal Register Citation 43 FR 17867)
- A Memorandum of Understanding was signed by USEPA & GEPA on May 21, 1978 which gave GEPA the authority to act on its behalf of USEPA in the protection of the aquifer.

Contact Information for Guam UIC Program

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