



Thomas C. Jorling  
Commissioner

July 27, 1990

MEMORANDUM

TO: Bureau Directors, Regional Water Engineers, Section Chiefs

SUBJECT: Division of Water Technical and Operational Guidance Series (2.1.2)  
UNDERGROUND INJECTION/RECIRCULATION (UIR) AT GROUNDWATER REMEDIATION  
SITES  
(Originator: Joseph F. Kelleher)

I. PURPOSE

This document provides guidance on the applicability of SPDES permits and groundwater effluent standards to the use of UIR as a remediation measure.

II. DISCUSSION

At groundwater contamination sites, including inactive hazardous waste sites, an increasingly popular remedial measure involves pumping out contaminated groundwater, treating it, and then recirculating a portion of it to the ground in order to speed the movement of pollutants toward the purge wells. A portion of the treated groundwater (blowdown) is always discharged to either surface waters or to a POTW so that the system operates at a net hydraulic deficit. This helps to prevent pollutants from migrating beyond the target area. The blowdown, if discharged to a surface water body, will normally require either a SPDES permit or consent order. If the blowdown is discharged to a POTW, it must meet all pretreatment and sewer district requirements.

This document addresses only that portion which is injected into the ground. For the injected water we need to know if the UIR system requires a SPDES permit and if the groundwater effluent standards, (contained in 6 NYCRR Section 703.6) or the groundwater quality standards (contained in 703.5 (a) (2)) apply.

III. GUIDANCE

A. SPDES Requirement

1. UIR systems will require a SPDES permit unless they meet the criteria of paragraph 2 of this section.
2. A SPDES permit will not be required if either of the following conditions is met:

- a. The area in which purging/injection is taking place is contained, either by a physical barrier (e.g. a slurry wall), or a hydraulic barrier (e.g. a large number of overlapping purge wells), so that contaminated groundwater is prevented from migrating beyond the boundaries of the containment zone. Containment must be complete to the extent measureable and the system must operate at a sufficient hydraulic deficit so as to maintain a hydraulic gradient into the containment area.
- b. The site is being remediated pursuant to an order. Any conditions that are necessary to satisfy the substantive technical requirements of the SPDES program can be incorporated into the order which, in effect, serves as a substitute for a permit. To allow this, it is necessary that a full agreement be reached with the responsible party on the appropriate conditions.

B. Applicability of Groundwater Effluent Standards

The injected water will be required to meet the groundwater discharge standards of section 703.6, or quality standards of section 703.5 (a) (2) unless the following conditions are met:

- a. The injection is into a "contained" area, as described in paragraph A (2)(a) above, and
- b. There is no net increase in the concentration of any chemical pollutant in the discharge prior to injection, and
- c. The remedial plan for the site includes groundwater monitoring, both inside and outside the contained area, sufficient to insure that no degradation of groundwater quality will result.

If the aforementioned conditions are met, the groundwater discharge standards and quality standards will not apply. Instead, limits for the injected water will be specified that are representative of BAT/BPJ, but which will still allow the actual wastewater treatment processes to be selected on a site by site basis. The blowdown must also satisfy surface water quality standards (surface discharge) or pretreatment requirements (POTW discharge), as appropriate.

  
Salvatore Pagano  
Director  
Division of Water

cc: Dr. Banks  
Mr. Campbell  
Ms. Chrimes  
Mr. Bruening  
Regional Engineers for Environmental Quality